Objective Information About Asbestos Litigation, and Some Observations

Annual Meeting
National Mesothelioma Virtual Bank
Pittsburgh, PA

April 20, 2017

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Overview of Presentation

1. Objective Information and Observations About Asbestos Litigation
   - Asbestos and mesothelioma litigation data
   - Observations about litigation and patients
   - Some “low dose” or “no dose” cases raise questions about causation
     • genetics, exposures, unknowns
     • “precision” risk analysis of smaller cohorts will influence outcomes
   - Additional data about asbestos litigation and history, “asbestos trusts,” and efforts to ban

2. More Multidisciplinary Efforts to Translate “Omic” Knowledge
   - Single professions lack the training, skills and data needed to grasp and foresee scientific, legal, medical, human and financial impacts
   - Society should obtain benefits if professionals team up to create more understanding, and better translation between science and law
Background and Disclosures

• Since 1983, law clerk and then commercial litigation and mass tort lawyer, mainly for very large corporations involved in manufacturing
  – 1 year as law clerk for Chief Justice of the Supreme Court of Illinois
  – no work for insurers
  – involved at national level for GAF (pipe insulation and other), W.R. Grace (spray applied materials), Pneumo Abex (friction products), and various others products and companies, including pumps, valves, and other devices
  – many commercial litigation cases; several related to obligations to pay for toxic tort expenses through insurance or private contracts
  – numerous cases taken to final judgment, including jury verdicts, and final judgements rendered in federal and state cases, arbitration cases and asbestos-related chapter 11 cases

• Practicing lawyer at my law firm - LSP Group LLC
• Director in boutique national consulting firm (Gnarus Advisors)
• Setting up new business involving genetics in medical/legal settings
• Pro bono director of not for profit focused on cancer issues (Triage Cancer), pro bono work for persons with cancer against health insurers that deny access to care, and for diabetics against HHS regarding refusal to pay for continuous glucose monitors

• GlobalTort blog on law and science intersections
Willis Towers Watson

Current Trends on U.S. Asbestos and Environmental Claim Liabilities

July 20, 2016

Tina Gwilliam, Jeff Kimble, Terri Kremenski, Chris McKenna, Sandy Santomenno

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Asbestos: U.S. P&C insurers
Cumulative net incurred loss & expense

- Cumulative incurred loss and expense reached $82 billion at year end 2015

Source: Willis Towers Watson analysis of financial statement data
- Grossed up for estimated amounts ceded by Fireman’s Fund, Munich Re America and Swiss Re America to respective non-U.S. parents, but various distortions remain
Asbestos: U.S. P&C insurers
Annual net incurred and payments

- Annual incurred peaked at $8B, and has averaged $2.1B since 2006
- Payments gradually declined from 2009 to 2011 but have been increasing since 2012
KCIC Industry Report, Asbestos Litigation: 2015 Year in Review
(Feb 23, 2016) – kcic.com
## Where and What is Being Filed

### COMPLAINTS BY DISEASE

<table>
<thead>
<tr>
<th>Disease from Complaint</th>
<th>2014</th>
<th>2015</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesothelioma</td>
<td>2,012</td>
<td>2,102</td>
<td>4.5%</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>1,092</td>
<td>1,062</td>
<td>-2.7%</td>
</tr>
<tr>
<td>Non-Malignant</td>
<td>998</td>
<td>758</td>
<td>-24.0%</td>
</tr>
<tr>
<td>Unknown</td>
<td>408</td>
<td>339</td>
<td>-16.9%</td>
</tr>
<tr>
<td>Other Cancer</td>
<td>132</td>
<td>145</td>
<td>9.8%</td>
</tr>
<tr>
<td>Pneumoconiosis</td>
<td>88</td>
<td>44</td>
<td>-50.0%</td>
</tr>
<tr>
<td>Silicosis</td>
<td>90</td>
<td>15</td>
<td>-83.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,820</strong></td>
<td><strong>4,465</strong></td>
<td></td>
</tr>
</tbody>
</table>

1 When more than one disease is alleged, the highest level of malignancy is used for purposes of reporting.

## Top 15 Jurisdictions: Disease Mix

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Lung Cancer</th>
<th>Mesothelioma</th>
<th>Non-Malignant</th>
<th>Other Cancer</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madison County, IL</td>
<td>9.5%</td>
<td>48.1%</td>
<td>0.7%</td>
<td>1.4%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Baltimore City, MD</td>
<td>16.0%</td>
<td>0.9%</td>
<td>31.7%</td>
<td>52.4%</td>
<td>0.3%</td>
</tr>
<tr>
<td>New York, NY</td>
<td>4.6%</td>
<td>3.9%</td>
<td>0.8%</td>
<td>4.1%</td>
<td>74.0%</td>
</tr>
<tr>
<td>Wayne, MI</td>
<td>4.1%</td>
<td>0.4%</td>
<td>29.3%</td>
<td>9.7%</td>
<td>0.0%</td>
</tr>
<tr>
<td>St. Louis, MO</td>
<td>12.1%</td>
<td>4.4%</td>
<td>0.7%</td>
<td>2.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>7.9%</td>
<td>3.9%</td>
<td>4.7%</td>
<td>12.4%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Cook County, IL</td>
<td>4.6%</td>
<td>5.4%</td>
<td>2.5%</td>
<td>2.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>New Castle, DE</td>
<td>5.3%</td>
<td>2.9%</td>
<td>0.8%</td>
<td>0.7%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Kanawha, WV</td>
<td>2.0%</td>
<td>2.8%</td>
<td>2.6%</td>
<td>0.0%</td>
<td>0.9%</td>
</tr>
<tr>
<td>St.Clair, IL</td>
<td>8.7%</td>
<td>0.3%</td>
<td>0.1%</td>
<td>1.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Los Angeles, CA</td>
<td>0.8%</td>
<td>3.9%</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Middlesex, MA</td>
<td>5.4%</td>
<td>1.4%</td>
<td>0.5%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Middlesex, NJ</td>
<td>1.9%</td>
<td>2.2%</td>
<td>1.2%</td>
<td>0.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Allegheny, PA</td>
<td>2.4%</td>
<td>1.6%</td>
<td>0.3%</td>
<td>0.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Northampton, PA</td>
<td>0.8%</td>
<td>0.0%</td>
<td>6.1%</td>
<td>0.7%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

| % of Total Disease Filings Per Disease Type Attributable to Top 15 Jurisdictions | 86.2% | 82.1% | 82.1% | 86.9% | 78.5% |

### Top 10 Jurisdictions: Mesothelioma Filings

<table>
<thead>
<tr>
<th>Top 10 Jurisdictions: Mesothelioma</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madison County, IL</td>
<td>931</td>
<td>1,012</td>
<td>1,943</td>
</tr>
<tr>
<td>Cook County, IL</td>
<td>116</td>
<td>114</td>
<td>230</td>
</tr>
<tr>
<td>St. Louis, MO</td>
<td>131</td>
<td>92</td>
<td>223</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>83</td>
<td>81</td>
<td>164</td>
</tr>
<tr>
<td>New Castle, DE</td>
<td>103</td>
<td>61</td>
<td>164</td>
</tr>
<tr>
<td>Los Angeles, CA</td>
<td>59</td>
<td>83</td>
<td>142</td>
</tr>
<tr>
<td>New York, NY</td>
<td>52</td>
<td>81</td>
<td>133</td>
</tr>
<tr>
<td>Middlesex, NJ</td>
<td>44</td>
<td>47</td>
<td>91</td>
</tr>
<tr>
<td>Middlesex, MA</td>
<td>32</td>
<td>58</td>
<td>90</td>
</tr>
<tr>
<td>Kanawha, WV</td>
<td>39</td>
<td>29</td>
<td>68</td>
</tr>
</tbody>
</table>

| Top 10 Meso Jurisdictions Total:  | 1,590| 1,658| 3,248|
| Percent of Total Meso Filings Attributable to Top 10 Jurisdictions: | 79.0% | 78.9% |

# Top 10 Plaintiff Firms

<table>
<thead>
<tr>
<th>Plaintiff Firm</th>
<th>2015 Filing Count</th>
<th>Percent of Total 2015 Filings</th>
<th>Cumulative Percent of Total Filings</th>
<th>Average # Defendants Named</th>
<th>Minimum # Defendants Named</th>
<th>Maximum # Defendants Named</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gori, Julian &amp; Associates P.C.</td>
<td>460</td>
<td>10.3%</td>
<td>10.3%</td>
<td>119</td>
<td>22</td>
<td>252</td>
</tr>
<tr>
<td>Law Offices of Peter G. Angelos P.C.</td>
<td>458</td>
<td>10.3%</td>
<td>20.6%</td>
<td>62</td>
<td>13</td>
<td>135</td>
</tr>
<tr>
<td>Weitz &amp; Luxenberg, P.C.</td>
<td>431</td>
<td>9.7%</td>
<td>30.2%</td>
<td>38</td>
<td>4</td>
<td>157</td>
</tr>
<tr>
<td>Simmons, Hanly Conroy</td>
<td>367</td>
<td>8.2%</td>
<td>38.4%</td>
<td>58</td>
<td>2</td>
<td>204</td>
</tr>
<tr>
<td>Goldberg, Persky &amp; White, P.C.</td>
<td>218</td>
<td>4.9%</td>
<td>43.3%</td>
<td>138</td>
<td>13</td>
<td>325</td>
</tr>
<tr>
<td>Maune, Raichle, Hartley, French &amp; Mudd LLC</td>
<td>190</td>
<td>4.3%</td>
<td>47.6%</td>
<td>32</td>
<td>6</td>
<td>111</td>
</tr>
<tr>
<td>Cooney and Conway</td>
<td>178</td>
<td>4.0%</td>
<td>51.6%</td>
<td>68</td>
<td>14</td>
<td>172</td>
</tr>
<tr>
<td>Law Offices of Peter T. Nicholl</td>
<td>148</td>
<td>3.3%</td>
<td>54.9%</td>
<td>39</td>
<td>27</td>
<td>47</td>
</tr>
<tr>
<td>SWMK Law, LLC</td>
<td>120</td>
<td>2.7%</td>
<td>57.6%</td>
<td>111</td>
<td>13</td>
<td>263</td>
</tr>
<tr>
<td>Shrader &amp; Associates LLP</td>
<td>107</td>
<td>2.4%</td>
<td>60.0%</td>
<td>125</td>
<td>15</td>
<td>233</td>
</tr>
</tbody>
</table>

% of Total 2015 Filings Attributable to Top 10 Plaintiff Firms: 60.0%

# Plaintiff Counsel by Disease Mix

<table>
<thead>
<tr>
<th>Plaintiff Firm</th>
<th>Lung Cancer</th>
<th>Mesothelioma</th>
<th>Non-Malignant</th>
<th>Other Cancer</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gori, Julian &amp; Associates P.C.</td>
<td>18.2%</td>
<td>12.5%</td>
<td>0.0%</td>
<td>2.8%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Law Offices of Peter G. Angelos P.C.</td>
<td>12.0%</td>
<td>1.1%</td>
<td>34.2%</td>
<td>33.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Weitz &amp; Luxenberg, P.C.</td>
<td>8.3%</td>
<td>4.5%</td>
<td>0.5%</td>
<td>3.4%</td>
<td>70.8%</td>
</tr>
<tr>
<td>Simmons Hanly Conroy</td>
<td>0.5%</td>
<td>17.1%</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Goldberg, Persky &amp; White, P.C.</td>
<td>4.2%</td>
<td>0.9%</td>
<td>18.7%</td>
<td>2.1%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Maune, Raichle, Hartley, French &amp; Mudd LLC</td>
<td>0.0%</td>
<td>9.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Cooney and Conway</td>
<td>4.3%</td>
<td>5.2%</td>
<td>2.5%</td>
<td>2.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Law Offices of Peter T. Nicholl</td>
<td>6.1%</td>
<td>0.1%</td>
<td>6.6%</td>
<td>21.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>SWMK Law, LLC</td>
<td>3.6%</td>
<td>3.7%</td>
<td>0.4%</td>
<td>0.7%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Shrader &amp; Associates LLP</td>
<td>0.2%</td>
<td>4.8%</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Filing Count by Plaintiff Counsel by Disease</th>
<th>609</th>
<th>1,237</th>
<th>479</th>
<th>95</th>
<th>257</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of 2015 Disease Filings Per Disease Type Attributable to Top 10 Plaintiff Firms</td>
<td>57.3%</td>
<td>58.8%</td>
<td>63.2%</td>
<td>65.5%</td>
<td>75.8%</td>
</tr>
</tbody>
</table>

Data About Asbestos Bankruptcy Trusts
Asbestos Bankruptcy Trust Payouts

**Exhibit 3: Trust and Bankruptcy Pre-Pack Claim Payments**

- Pre-Pack Bankruptcy Claim Payments*
- Confirmed Trust Claim Payments

*Pre-pack settlement amounts for Combustion Engineering, NARCO, DII (Halliburton), Conoco and Pfizer (Quigley). These amounts paid or committed outside of the 524(g) Trust funds total between $5 and $6 billion.

- Marc C. Scarcella & Peter R. Kelso, Asbestos Bankruptcy Trusts: 2012 Overview of Trust Assets, Compensation & Governance (commentary article to the June 2012 issue of Mealey’s Asbestos Bankruptcy Report – Vol. 11, No. 11 June 2012)
Year End 2011 Assets – Major Asbestos Bankruptcy Trusts

Exhibit 1: Trust Yearend Assets

- Marc C. Scarcella & Peter R. Kelso, Asbestos Bankruptcy Trusts: 2012 Overview of Trust Assets, Compensation & Governance (commentary article to the June 2012 issue of Mealey’s Asbestos Bankruptcy Report – Vol. 11, No. 11 June 2012)
Asbestos Bankruptcy Trust Payouts By Diseases

Exhibit 5: Trust Claim Payments by Disease Group as a Percent of Total Claim Payments

- Marc C. Scarcella & Peter R. Kelso, Asbestos Bankruptcy Trusts: 2012 Overview of Trust Assets, Compensation & Governance (commentary article to the June 2012 issue of Mealey’s Asbestos Bankruptcy Report – Vol. 11, No. 11 June 2012)

*Pre-petition and Pre-confirmation settled claims are typically not reported by trusts at the disease category level.

**Malignant claim category may include severely disabled asbestosis claims for certain Trusts.
PLAINTIFFS’ FIRMS - BANKRUPTCY TRUST RELATIONSHIPS

**Exhibit 10: Summary of Trust Assets and Claim Payments by TAC Firm** *(dollars in millions)*

<table>
<thead>
<tr>
<th>TAC Member Firm / Affiliation</th>
<th>No. of Trusts</th>
<th>2011 YE Assets</th>
<th>2011 Claim Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazan, McClain, Lyons, Greenwood &amp; Harley</td>
<td>17</td>
<td>$13,530</td>
<td>$1,700</td>
</tr>
<tr>
<td>Baron &amp; Budd, P.C.</td>
<td>15</td>
<td>$11,670</td>
<td>$1,580</td>
</tr>
<tr>
<td>Motley Rice, LLC</td>
<td>10</td>
<td>$11,400</td>
<td>$1,540</td>
</tr>
<tr>
<td>Cooney &amp; Conway</td>
<td>12</td>
<td>$11,240</td>
<td>$1,450</td>
</tr>
<tr>
<td>Weitz &amp; Luxenburg</td>
<td>13</td>
<td>$10,980</td>
<td>$1,460</td>
</tr>
</tbody>
</table>

- Marc C. Scarcella & Peter R. Kelso, Asbestos Bankruptcy Trusts: 2012 Overview of Trust Assets, Compensation & Governance (commentary article reprinted from the June 2012 issue of Mealey’s Asbestos Bankruptcy Report – Vol. 11, No. 11 June 2012)
Observations About Asbestos
Litigation Issues, Compensation, and Misinformation
What are the Issues in Litigation?

- **Bottom line issue:** who pays how much financial compensation?
  
- “Who pays” issues have shifted because of over 100 “asbestos bankruptcies;” some in the 1980s (Manville) and many others in late 1990s and early 2000s

- **“Product identification”** - what products/companies produced/sold the products that caused the exposure (product liability)
  - steam or hot fluid pipe or boiler insulation, asbestos papers, spray-on
  - friction materials, gaskets, packing, floor tile, roofing

- What companies operated job sites where exposures occurred
  - High-rise buildings with insulated steel beams, power plants, shipyards, energy plants, steel mills, refineries,
  - career employees v. union worker assigned to various job sites

- Causation and harm issues - relevant facts and issues include:
  
- **Is it really a mesothelioma** (usually not an issue if noted experts are involved, but even they disagree on occasion)

- Was there notable or low or “no” exposure – the latter are becoming the toughest cases on substance – genetic factors
Compensation in Mesothelioma Cases

- Zero reliable public databases of compensation information
- Plaintiff firms do not share well
- Defendants and insurers do not share well
- 30-40% contingent fees
- My sense – a long-time union worker with mesothelioma, represented by a good trial firm, may reasonably hope to obtain settlements and trust payments in the range of $1.5-2 million
- Lesser recoveries when a person worked at fewer job sites with fewer products or law firm is less respected and less trial
- Trial verdicts can vary a great deal; some very high and some not
Misinformation About Asbestos Trusts

• Defense side misinformation

• US Chamber of Commerce spends tens of millions supporting tobacco and other efforts; very sad to see and very counterproductive for society

• “Double-dipping” arguments are not accurate – everyone knew of trusts

• “Fraud” arguments – only rarely true; and most of that was years ago

• US Chamber of Commerce is NOT the same as any defendant

• Plaintiff side misinformation

• Medical records and other facts are not confidential in litigation, and so the same should be trust for information held by trusts

• Trust payments should not be a secret
Television Ads for “Mesothelioma”

• In April 2014, Kantar Media reported on the general growth of television advertising by "meso lawyers"

• Kantar explained, "From the Great Recession in 2008 onwards, the upward trend of trial lawyer TV advertising continued unabated even while the rest of the advertising industry took a hit. This ad category has grown by 68% over the past eight years from $531 million in 2008 to nearly $900 million for 2015.

• Legal services has grown six times faster than all other advertising sectors, according to a recent Kantar Media CMAG study for the U.S. Chamber of Commerce, while doubling its share of local spot advertising."
Patients Hiring Lawyers, and Realities of “Mesothelioma Marketing” Websites

• Many (most) of the “mesothelioma” web sites are primarily about seeking out persons to become clients for some plaintiff law firms

• Recruiting processes worrisome as they may divert patients away from better sources of medical information and may result in less than optimal medical care choices
    – different plaintiff’s have different links to doctors or hospitals
    – cancer centers v. community doctors
    – clinical trials

• In other instances, persons may be discouraged from participating in clinical trials that need patient participation in order to advance research against this rare disease

• The marketplace confusion will only grow as to hiring lawyers as more new plaintiff firms split off from old firms, and cases may become more complex

• New firms may develop new niches e.g. kidney cancer, prostate cancer
Recruiting Law Firms v. Real Trial Law Firms

• “Recruiting law firms” advertise to sign up clients but have little or no interest in trying a case; they essentially create no value

• “Trial law firms” actually know how to and will try a case.

• Recruiters seek to capture cases and refer them to trial firms, but keeping a percentage of the recovery

• Trial dates and trial-ready capability are keys to getting cases settled

• Much of advertising media is from recruiting firms, but all advertise

• In April 2014, Kantar Media reported on some trial firm lawyers taking out ads that denigrate the recruiting law firms

• Some trial firms are no longer accepting referrals, they say
Real Trial Law Firms Add Real Value

• Just as medical groups create databases of information for use in treating future patients, real trial law firms create databases of information that can be used to better serve future clients; much use of investigators and paralegals

• Databases may contain, for example, information about the types, sources and amounts of asbestos products in use at particular facilities
  – database of sales records and invoices obtained from the facility over many years
  – database of past testimony about makers of asbestos products used at the facilities

• Trial law firm may also know the whereabouts of retired employees able and willing to provide testimony about products installed decades in the past, or the practice of a company to purchase all of its products from supplier “X.”
More on Real Trial Law Firms and Value

• Consider a pipefitter example. He may have been a career employee at one facility, or a union worker sent to work on renovation products at numerous large industrial facilities in a region, with many persons present as employees or contractors.

• Another fact pattern - “white collar” worker with mesothelioma
  — Summer jobs, facts about persons who installed asbestos or other products during the construction of high-rise buildings, power plants or school buildings.

• Or, consider a young woman with mesothelioma, perhaps “caused” in whole or in part by asbestos fibers “brought home” or into a family car from products her father, sibling or husband worked with in the course of his work.

• Law firm’s knowledge may be critical to a recovery if the person bringing home the fibers died before the woman developed mesothelioma.
Plaintiff Firms Promoting BAP1 Susceptibility to Mesotheliomas

• Several other cancers in the BAP1 syndrome – kidney cancer is now included with relative certainty – e.g. http://www.cancerindex.org/geneweb/BAP1.htm

• Web sites associated with plaintiff firms have many pages about genetic susceptibility to mesothelioma and other cancers, including ovarian cancer


Recent CDC Data on Mesothelioma

• As to genetic factors, note presentation this afternoon from Ainsley Weston on mesothelioma data 1999-2015


• About 2,600 mesotheliomas in persons under age 55
May 24, 2017 Workshop - Genetics in Civil Law

- To push forward more multidisciplinary thinking on opportunities and risks as to genetics and civil law, a workshop will be held on May 24, 2017 in DC.
- 2d year of workshop
- Plan for 2018 includes a focus on genetics and health insurance
- 2017 presenters and attendees include:
  - multidisciplinary academic in genetic science and law (e.g. Gary Marchant – PhD genetics and JD, and MS in public policy) ASU Law School
  - leader at pioneers in genetic (David Kiernan - Venter Institute; Synthetic Biology)
  - leader of a new centers focused on toxins, epigenetics and exposomics (Cheryl Walker – PhD – Baylor Center for Precision Environmental Health
  - Director of NIOSH – Joseph Howard (PhD, MPH, JD)
  - leader in risk analysis and science policy - George Gray of George Washington University
  - leaders in Federal Judicial Center and NAS law and molecular science efforts – Joe Cecil (PhD/JD) and Anne-Marie Mazza (PhD)
Medical Records Can Matter; Low Dose and Genetic Cases

• “Precision medicine” seem appropriate for doctor/patient/lawyer interactions about medical/legal situations, especially “low dose” or “possibly genetic” cases

• “Low dose” cases - When recording, acknowledge limited questioning by physician, and/or use precision when recording information about “asbestos exposure”
  – Trial lawyers for both defendants and plaintiffs are expert at taking a statement out of context and putting a headline spin around an imprecise statement

• Cancer syndrome cases – I’m personally concerned a quagmire is developing in connection with “investigation” and “reporting” of whether BAP1 families (or others) had “exposure” or not
  – Development of best practices for gathering data
  – Recording data
  – Preserving data
  – Access to data (supplementary materials)
2016 – Big Picture Data from Roggli and Colleagues Regarding Mesothelioma and Asbestos Fiber Burden
Figure 2. Fiber analysis results by gender and tumor site. The red bars and associated numbers indicate cases with an elevated asbestos fiber content, whereas the blue bars and associated numbers indicate cases with fiber content within the range of our reference population.
2016 – Smaller Picture Peritoneal Mesothelioma Data from Roggli and Colleagues Regarding Mesothelioma and Asbestos Fiber Burden
Figure 3. The percentage of peritoneal mesothelioma patients with elevations above our cut-off values for asbestos bodies by light microscopy or SEM, commercial amphiboles (amosite + crocidolite), or any one of these three parameters. The proportions of pleural mesothelioma cases with elevations in these parameters is included for comparison. *$P < .0001$, G3 compared to G1 and G2.
Condensed History About Asbestos Use, Regulation and Insurance
Underestimation is a hallmark of asbestos disease and asbestos litigation

Industrialization and steam produced demand for insulation and fireproofing

Amphibole asbestos mines developed in South Africa and Australia; chrysotile asbestos mines in Canada, US, Italy, Russia, China

UK and others observed disease in workers; regulations 1931-32 but limited to factories making asbestos products, as opposed to installers of products; headed off some disease in the short-term but then did little more until bans on amphiboles in 1970-mid 1980s

In the US, WWII and industrialization; exposure limits through ACGIH; some leverage through some government contracts

Late 1950-s - 1960s - thalidomide, Rachel Carson’s Silent Spring, burning rivers

Mid-1960s – legal scholars and courts pushed “product liability” law; Clarence Borel asbestos case filed in 1969; no warnings on asbestos fiber packages until mid-1960s,

1971-72 – arrival of OSHA and EPA as agencies to clean up America, asbestos exposure limits reduced and some work practices banned

Insurance for manufacturers was cheap in the late 1970s and 1980s because insurers wanted to obtain and deploy $$ in high interest rate environment

1973 – federal appeals court affirmed verdict for Clarence Borel

1980s – OSHA reduced exposure levels by orders of magnitude

US - insurance issued to manufacturers until 1985ish even though workers compensation claims had been filed for decades
Interest Rates

USA 10-year Bond Constant Maturity Yield (IGUSA10D)
Interest Rates – 1950 - 2015

https://fred.stlouisfed.org/series/INTDSRUSM193N
US Exposure Levels History

- **1971 - A 12 f/cc permissible exposure limit (PEL)** for asbestos was included in the initial promulgation on May 29, 1971 (36 FR 10466) of OSHA standards pursuant to Section 6(a) of the Act.

- **In June 1972**, OSHA promulgated a new final standard that established an 8-hour TWA PEL of 5 f/cc and a ceiling limit of 10 f/cc. These limits were intended primarily to protect employees against asbestosis, and it was hoped that they would provide some incidental degree of protection against asbestos induced forms of cancer.

- **Effective July 1976**, OSHA's 8-hour TWA limit was reduced to 2 f/cc and this limit remained in effect up to the effective date of the revised 1986 standards.

- **In October 1975**, OSHA published a notice of proposed rulemaking (40 FR 47652) to revise the asbestos standard because the Agency believed that "sufficient medical and scientific evidence has been accumulated to warrant the designation of asbestos as a human carcinogen" and that advances in monitoring and protective technology made re-examination of the standard "desirable."

- This proposal would have reduced the 8-hour TWA to 0.5 f/cc and imposed a ceiling limit of 5 f/cc for 15 minutes. The 1975 proposal would have applied to all industries except construction. At that time no separate proposal applicable to the construction industry was developed by the Agency.

US Exposure Levels History

• On June 17, 1986, OSHA issued two revised standards, one governing occupational exposure to asbestos in general industry workplaces, the other applicable to construction workplaces (51 FR 22612 et seq., June 20, 1986).

• The 1986 standards explicitly applied to occupational exposure to non-asbestiform tremolite, anthophyllite and actinolite.

• But, after a subsequent and separate rulemaking proceeding OSHA deleted these minerals from the scope of the asbestos standards. (57 FR 24310, June 8, 1992).

• The 1986 standards shared the same permissible exposure limit (PEL) and most ancillary requirements. Both standards reduced the 8-hour time weighted average (TWA) PEL tenfold to 0.2 f/cc from the previous 2 f/cc limit.

• Specific provisions were added in the construction standard to cover unique hazards relating to asbestos abatement and demolition jobs.

• See https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=PREAMBLES&p_id=775
Future Mesothelioma Projections for the US
Future Mesothelioma Projections, with Some Backstories

• Underestimation is a hallmark of asbestos disease and asbestos litigation
• Workers compensation claims were happening in the 1930s-1950s
• Johns- Manville – mid-1980s; cancer projections too low (only projected “occupational” exposure; exposures > than believed, life expectancy increased)
• Johns- Manville – underestimated claims by at least 8X (never more than 100k claims, they said – now around 850k claims)
• Assumptions/beliefs about dose appear inaccurate
• Over 100 “asbestos-driven” chapter 11 proceedings (company does not have to be out of cash to use chapter 11; some were “strategic” filings)
• Many future projections are from interested/paid observers/consultants to various constituencies
• Bates White – economic consulting firms generally aligned with insurers and some very aggressive manufacturers; probably has the best data in the US due to vast work (and fees) in chapter 11 asbestos cases
• Accountants and Wall Street analysts think about asbestos for purposes of evaluating adequacy of reserves to pay current and future claims
By the numbers: the future of mesothelioma in America

Jorge Gallardo-Garcia, PhD

March 18, 2014
In future years, the portion of incidence not attributable to asbestos exposure will continue to grow.
Improving Asbestos Quantification: What Can Be Done?

Jorge E. Sirgo, Gnarus Advisors, LLC

Casualty Loss Reserve Seminar
September 10, 2015
Sources of Disparity

- **Context of Nicholson et. al. (1982) forecast and SEER data**
  - SEER represents an estimate of diagnoses from all causes
  - Nicholson et. al. (1982) an estimate of deaths from those occupationally exposed to asbestos

- **Outdated estimates of mortality**
  - Life expectancy has increased
  - Use of static versus dynamic estimate

- **Exposure level assumptions**
  - Nicholson et. al. (1982) assumes reduced levels as “adoption for control measures” in 1972-1979
Exposures Did Not Fall Off as Hoped
Asbestos Exposures Did Not Drop Off As Much as Hoped

- First-of-its-kind May 2015 paper indicates that workplace asbestos fiber levels remained well above federal limits in some workplaces up through 2011

- Study by persons at Cardno ChemRisk, a consulting firm - typically associated as consulting for large companies

- The abstract and section 3.3 explain finding over limit exposures from 1984-2011 as follows.

- “The United States Occupational Safety and Health Administration (OSHA) maintain the Chemical Exposure Health Data (CEHD) and the Integrated Management Information System (IMIS) databases, which contain quantitative and qualitative data resulting from compliance inspections conducted from 1984 to 2011. This analysis aimed to evaluate trends in workplace asbestos concentrations over time and across industries by combining the samples from these two databases. From 1984 to 2011, personal air samples ranged from 0.001 to 175 f/cc. Asbestos compliance sampling data associated with the construction, automotive repair, manufacturing, and chemical/petroleum/rubber industries included measurements in excess of 10 f/cc, and were above the permissible exposure limit from 2001 to 2011.”
More on exposure levels

***

- “Despite the fact that airborne concentrations as measured by OSHA decreased significantly after 1985, as of 2010, the OSHA asbestos sampling data indicated that exposures in certain industries (e.g., construction) still continue to exceed current occupational exposure guidelines.”

- Therefore, exposures in excess of the OSHA regulatory limits may still be present in major industries such as construction and manufacturing and may present a public health challenge for those working in those industries when proper PPE [personal protective equipment] is not implemented, as required by Federal Regulations (Maylie et al., 2004)

Risk Estimation Models Must Continue to Evolve

• The need to continue to improve older risk estimation methods was highlighted in a 2015 invited commentary by Suresh Moolgavkar, M.D., Ph.D., who has testified several times for defendants in asbestos personal injury litigation. He explained:

  “It is becoming increasingly clear that summary measures of exposure, such as cumulative exposure, cannot capture the impact of complex temporal patterns of exposure on disease risk, and that the relative hazard, which is the target of estimation with the proportional hazards model, has serious limitations ....

• “Another equally important factor in the misinterpretation of epidemiological data is the ubiquitous and often inappropriate application of the proportional hazards model for analysis and the virtually universal use of the relative risk as a measure of effect”

Up to Now, Failure of Efforts to Ban All Asbestos Use in the US
Efforts to Ban Asbestos, Including “New” TSCA

• **1976 - TSCA** – “The President’s Council on Environmental Quality proposed comprehensive federal legislation in 1971 to identify and control potentially dangerous chemicals in U.S. commerce that were not adequately regulated under other environmental statutes. President Ford signed TSCA into law on October 11, 1976. Subsequently, five titles were added to address specific concerns—asbestos in 1986 (Title II, P.L. 99-519), to Title I, Section 6.” See [https://fas.org/sgp/crs/misc/RL31905.pdf](https://fas.org/sgp/crs/misc/RL31905.pdf)

• EPA was created in 1970-71; Nixon years

• TSCA was essentially failed legislation; “grandfathered” thousands of chemicals, and less than 10 chemicals ultimately banned

• July 1989 - EPA issued final regulation banning most uses of asbestos: the Asbestos Ban and Phase-Out Rule (ABPR), phased end to importation, processing, manufacture and distribution of products containing asbestos

• 1989 - various users filed suit to block the rule, and won in October 1991 - *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991)

• EPA failed to demonstrate a ban was the “least burdensome alternative” to regulating asbestos

• Bush I administration chose not to appeal, but did confirm the ban could apply to asbestos products that were not being manufactured, processed or imported as of the ban date in 1989
2016 – “New” TSCA - More Efforts to Ban Asbestos

- No success with subsequent ban efforts by Senator Patty Murray in early to mid 2000s and efforts for Bruce Vento memorial bill in 2008 under TSCA

- June 2016 - “New” Toxic Substances Control Act (TSCA) as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act

- Required prompt action as to at least 10 chemicals

- Per EPA: “Amended new TSCA required that EPA choose the first ten chemicals from the list of 90 chemicals on the 2014 Update to the TSCA Work Plan. TSCA Work Plan chemicals were selected based on their hazard and the public’s potential exposure, as well as other considerations such as persistence and bioaccumulation. In selecting the first ten chemicals, EPA also took into account recommendations from the public, industry, environmental and public health groups, and members of Congress and tried to give weight to chemicals where work on assessing risks were underway.”

- December 2016 First 10 chemicals announced and “asbestos” included

- June 2017 – per EPA - “The first step in the risk evaluation process, as outlined in TSCA, is to issue a scoping document for each chemical substance within six months of its designation in the Federal Register (i.e., by June 19, 2017, for the first ten chemicals selected). The scoping document will include information about the chemical substance, such as conditions of use, exposures, including potentially exposed or susceptible subpopulations, and hazards, that the Agency expects to consider in the risk evaluation. TSCA requires that these chemical risk evaluations be completed within three years of initiation, allowing for a single 6-month extension.”
Another Source for Transformative Change:
Human Exposome Project - Seeking Genetic and Epigenetic Data During and After Exposures
The Human Exposome Project Is Aimed at Collecting Genetic and Epigenetic Data During and After Exposures

- IARC’s Human Exposome Project has its roots in a 2005 article outlining improved methods to seek better answers as to sources of diseases – http://humanexposomeproject.com/

- “The human exposome is the environmental equivalent of the human genome. It is a representation of the complex exposures we are subjected to throughout our lives, including our diet, lifestyle factors, and social influences. It also incorporates how our bodies respond to these challenges.”

- Methods now used are better experiments than old days - new method exposes the test creature AND measures impacts during and after the exposure – – blood, urine, proteins, DNA, RNA, microRNA, etc

- Work underway in the US at places such as Emory and Georgia Tech

- Consider the impacts of automated sensors – e.g. wearable devices

- Consider the impacts when implanted sensors yield even more data
Individual Variable - Effects for “Toxic” Tort Litigation

- Some states – e.g. Texas allow some cancer claims only if relative risk is 2.0 or >

- An inherited genetic or epigenetic mutation may:
  - increase risk/susceptibility to disease (favorable to low dose plaintiff)
  - by itself cause disease (favorable to defendant)
  - Interact with co-factors to cause disease (variable impact)

- Today, Moolgavkar and other defense side expert witnesses increasingly have no choice but to acknowledge that genetic and epigenetic factors create a large range of variability in individual susceptibility to diseases
  - genetic and epigenetic factors can materially alter relative risk calculations
  - Individual variability undercuts the value of “stand alone” epidemiology
  - Individual susceptibility/variability will become a big deal in ongoing work under new laws and regulations – newly amended TSCA

- Caveat/reminder - even the 2.0 rule is used only if the mechanism of harm is not yet clear “enough; “
Cancers in Less than 1 Year from Epigenetic Effects?

- Epigenetic effects can be game changers, as pharma learned when a smart federal MDL judge ruled that cancers might arise in one year due to epigenetic effects.

- Actos drug for diabetes – federal MDL - one of plaintiff’s lead expert witnesses explicitly and carefully attributed bladder cancer to epigenetic events.

- The expert (Jennifer Southgate) is a British PhD with an incredible CV, 30 years of focus on bladder linings, and she never before testified in litigation.

- Ms. Southgate had consulted for various pharma companies on Actos type drugs.

- Ms. Southgate testified it is plausible bladder cancers emerged in a year or less.

- The Actos MDL judge allowed plaintiff’s experts to testify Actos could trigger bladder cancer with a year of taking the drug. *2013 U.S. Dist. LEXIS 179235*

- Inclusion of <1 year subset altered epidemiologic outcomes - $2.4 billion settlement.
Asbestos and “Molecular Signatures”
- Work Underway and Results Are Arriving
Asbestos “Signature” in Lung Cancer Tumors – Nymark and Helsinki

- Nymark and other EU researchers are several years into looking at lung cancer tumors for molecular markers related to past asbestos exposure and perhaps causation

- Helsinki 2014 - The International Conference on Monitoring and Surveillance of Asbestos-Related Diseases on 11-13 February 2014 gathered together 140 experts from 23 countries – online at:

- Meeting produced a document referred to as a consensus document (some may not agree on the quality of the consensus) – available online at:
  - Asbestos, asbestosis, and cancer, the Helsinki criteria for diagnosis and attribution 2014: recommendations, Scand J Work Environ Health, doi:10.5271/sjweh.3462

- Paper identifies the following mutations as possible molecular “signatures” in tumors for asbestos exposure and perhaps causation
### Table 3. Asbestos-related molecular alterations in lung cancer – Helsinki at 139

<table>
<thead>
<tr>
<th>Alteration</th>
<th>Putative consequence or carcinogenic association</th>
<th>Type of study</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al and loss at 2p16</td>
<td>Cell process</td>
<td>Lung cancer of asbestos-exposed individuals</td>
<td>105</td>
</tr>
<tr>
<td>LOH at3p14</td>
<td>FHIT exon loss</td>
<td>Lung cancer of asbestos-exposed individuals</td>
<td>115, 116</td>
</tr>
<tr>
<td>LOH at 3p21</td>
<td>Possible down-regulation of tumor suppressors</td>
<td>Lung cancer of asbestos-exposed individuals</td>
<td>99, 117</td>
</tr>
<tr>
<td>LOH/homozygous deletion at 9p21.3</td>
<td>Loss of P16/CDKN2A</td>
<td>Lung cancer of asbestos-exposed individuals</td>
<td>108, 109</td>
</tr>
<tr>
<td>CNA at 9q33.1</td>
<td>Loss of DBC1</td>
<td>Lung cancer of asbestos-exposed individuals</td>
<td>111</td>
</tr>
<tr>
<td>Al and loss at 19p13</td>
<td>Possible down-regulation of tumor suppressors, e.g. KEAP1</td>
<td>In vitro; lung cancer of asbestos-exposed individuals</td>
<td>100, 112</td>
</tr>
<tr>
<td>Polyploidy</td>
<td>Aneuploidy and chromosomal instability</td>
<td>In vitro; lung cancer of asbestos-exposed individuals</td>
<td>111, 118</td>
</tr>
<tr>
<td>Up-regulation of TP53</td>
<td>Decreased or abnormal tumor suppressor activity possibly due to mutations</td>
<td>In vitro; lung cancer of asbestos-exposed individuals</td>
<td>119, 120</td>
</tr>
<tr>
<td>Serum Ras (p21)</td>
<td>Up-regulation due to mutations</td>
<td>Asbestos-exposed lung cancer patients</td>
<td>121</td>
</tr>
<tr>
<td>KRAS</td>
<td>Specific mutations</td>
<td>Lung cancer of asbestos-exposed individuals</td>
<td>122, 123</td>
</tr>
</tbody>
</table>
“Signature” Graphics Could Impress Juries and Others
Differences in mutation burden and spectra between carcinogen and genetic models.
Proof of Principle – Finding Signatures for Tumors Caused by a “Toxin”

• As reported in a 2015 paper in Nature, researchers asked: can whole-exome sequencing and computers identify signature differences between tumors caused by two well-known “toxins” and tumors from an inherited (germline) mutation?
• Yes, is the proof of principle answer for KRAS mutations and these two toxins
• The abstract states, pertinent part:
  “Here we performed whole-exome sequencing on adenomas from three mouse models of non-small-cell lung cancer, which were induced either by exposure to carcinogens (methyl-nitrosourea (MNU) and urethane) or by genetic activation of Kras (KrasLA2).

Although the MNU-induced tumours carried exactly the same initiating mutation in Kras as seen in the KrasLA2 model (G12D), MNU tumours had an average of 192 non-synonymous, somatic single-nucleotide variants, compared with only six in tumours from the KrasLA2 model.

By contrast, the KrasLA2 tumours exhibited a significantly higher level of aneuploidy and copy number alterations compared with the carcinogen-induced tumours, suggesting that carcinogen-induced and genetically engineered models lead to tumour development through different routes.... “
Assessing Co-factors and Signatures
Co-factors, Cellular Signatures and Toxic Tort Cases

• As science develops more “signatures” or other evidence of the molecular sources of harm, it seems inevitable more cases will involve evidence of co-factors

• Therefore, more evidence about cellular level changes – when is it ”harm”?

• Therefore, more apportioning of harm, “fault” and the role of inherited genes?

• What argument(s) will be made by personal injury plaintiffs, manufacturers, employers, direct insurers, subrogation claim holders, and others?

• As co-factor issues multiply, how objectively can the relative causes be proved and assessed? Will administrative claiming follow?

Seeking “Molecular Signatures” for Silica Induced Harm versus Asbestos Induced Harm
Search for Signature(s) for Silica Injuries versus Asbestos Injuries

- Researchers looking at diseased lungs for molecular markers related to disease caused by silica v. asbestos (Brooke Mossman lab)

- “Utilization of overall gene expression, unsupervised hierarchical cluster analysis and integrated pathway analysis revealed gene alterations that were common to both minerals or unique to either mineral.”

- “Our findings reveal that both minerals had potent effects on genes governing cell adhesion/migration, inflammation, and cellular stress, key features of fibrosis. Asbestos exposure was most specifically associated with aberrant cell proliferation and carcinogenesis, whereas silica exposure was highly associated with additional inflammatory responses, as well as pattern recognition, and fibrogenesis.”

Multidisciplinary Teams to Translate Knowledge
Acknowledgments

• Mary Hesdorffer – wonderful, dedicated leader at Mesothelioma Applied Research Foundation, and co-author of patient focused chapter for new treatise by Testa on mesothelioma

• Mike Becich – comments and questions ahead of talk

• iMig, ASCO, AACR – fostering some roles for lawyers and other non-reseachers

• Harvey Pass, Rachel Ostroff, David Sugarbaker, Bob Wassman for prior joinder in multidisciplinary conferences as to asbestos

• Gary Marchant (ASU law school) (PhD in genetics, plus JD and policy degree)

• Michael Green (Wake Forest law school) (leader (with others) in NAS efforts to bring more molecular biology to courts)
Questions or follow-up?

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khartley@lspgrp.com
Supplemental Materials on
Future Mesothelioma Projections for the US
Asbestos: the next wave?

Thomas Toce, FCAS
17 March 2014
The views expressed by presenter are not necessarily those of Ernst & Young LLP.

These slides are for educational purposes only and are not intended to be relied upon as accounting, tax, or other professional advice. Please refer to your advisors for specific advice.
- Asbestos consumption
- OSHA measures
- Population occupation

<table>
<thead>
<tr>
<th>Year of birth</th>
<th>Exposure Factors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Base</td>
</tr>
<tr>
<td>1900</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>1910</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>1920</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td>1930</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>1940</td>
<td>0.75</td>
<td>0.80</td>
</tr>
<tr>
<td>1950</td>
<td>0.50</td>
<td>0.60</td>
</tr>
<tr>
<td>1960</td>
<td>0.25</td>
<td>0.30</td>
</tr>
<tr>
<td>1970</td>
<td>0.05</td>
<td>0.10</td>
</tr>
<tr>
<td>1980</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td>1990</td>
<td>0.00</td>
<td>0.01</td>
</tr>
</tbody>
</table>
Because age distribution has a 10-year standard deviation, we can’t observe decline yet:

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of deaths in 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25</td>
<td>0</td>
</tr>
<tr>
<td>25-34</td>
<td>11</td>
</tr>
<tr>
<td>35-44</td>
<td>26</td>
</tr>
<tr>
<td>45-54</td>
<td>104</td>
</tr>
<tr>
<td>55-64</td>
<td>345</td>
</tr>
<tr>
<td>65-74</td>
<td>805</td>
</tr>
<tr>
<td>75-84</td>
<td>1042</td>
</tr>
<tr>
<td>≥85</td>
<td>412</td>
</tr>
<tr>
<td>Total</td>
<td>2,745</td>
</tr>
</tbody>
</table>

Year of birth distribution for 2010 deaths

5% of current deaths born after 1952

Difficulty parameterizing and testing the models:

- Current deaths born on average in 1936
- Only 5% of current deaths born after 1952
High uncertainty leads to a wide range of answers.

Demographic models’ results:

<table>
<thead>
<tr>
<th>Future number of meso deaths</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>43,000</td>
<td>60,000</td>
<td>77,000</td>
</tr>
</tbody>
</table>

Maybe the best way to look at it is through probability distribution:
Willis Towers Watson
Current Trends on U.S. Asbestos and Environmental Claim Liabilities

Tina Gwilliam, Jeff Kimble, Terri Kremenski, Chris McKenna, Sandy Santomennno

July 20, 2016
Projected future asbestos claim filings

- 36,000 new mesothelioma claims in 2016 & subsequent
  - Half in the next ten years

Estimated 2016+ Filings Relative to 2015 Level

- Bar chart showing filing year from 2015 to 2050, with categories for Mesothelioma, Lung and Other Cancers, Nonmalignant, and Malignant %.

2015 = 1.0
Mesothelioma incidence and claim counts

- Annual incidence (= diagnosis) counts have been nearly flat
- Claim filing counts have fluctuated due to non-epidemiological factors
  - Increasing slightly since 2009
Mortality improvements have been higher than expected for older ages.
Supplemental Materials on Growth of Plaintiff’ Bar and Litigation Industry in General
Economics of Plaintiff’s Bar

• Tort litigation is an industry, studied by some

• Historic review demonstrates reasons for U.S. tort litigation industry that exists today

• For all the details, read a marvelous law review article by Professor Stephen C. Yeazell, Re-financing Civil Litigation, 51. DePaul Rev. 183 (2001) (part of symposium issue on changing landscape of civil litigation.)

• Factors identified by Prof. Yeazell apply outside the US and indicate why there is global growth in litigation
Tort Litigation In U.S. Was Not Much of An Industry Before 1950

• Until about 1950, tort litigation was not much of a coordinated industry in the U.S. because:
  
  – Most lawyers practiced alone or with just one or two other lawyers, and so could not withstand concerted defenses
  
  – Plaintiff oriented law firms were not well financed
  
  – Many prospective defendants had no money
  
  – Communication was slow and cumbersome
  
  – Insurers and defendants were more coordinated
Changes That Helped Fuel Growth in the American Litigation Industry

• Mass production techniques expanded after WWII

• Mortgage and automobile lenders required insurance purchases by individuals

• Companies bought more insurance

• Communication became easier for plaintiffs firms as airlines and telephone service improved and expanded

• Plaintiffs’ lawyers began practicing in somewhat larger groups
More Flexible Legal Rules, Regulation and Awareness Fueled Litigation

Industry

• **End of “privity rule”** for product related suits –
  – requirement used to be that a person needed “contractual privity” with another person or entity in order to file a suit about a product or process; e.g. persons could not sue a national manufacturer of a product because they did not have a contract with each others; contract was with local car dealer

• **“Environmental” consciousness raised** by books (Rachel Carson’s *Silent Spring* in 1962), and televised horror stories regarding pollution (burning rivers in Cleveland)

• **Dawn of “environment related” executive branch agencies** in early 1970s - legislation and regulation increased, resulting in more legal standards and lawyers (EPA; OSHA’ NIOSH)

• **Sovereign (government) immunity** significantly limited

• **Comparative fault adopted** – prior rule barred recovery if plaintiff was even 1% at fault
Latencies, Layoffs and Communication Brought The Tort Litigation Industry To Fruition

- Harmful “exposures” from the 1940’s and 1950’s began to result in observable and disabling disease
- Plant closings and “downsizing” forced employees and retirees to look for new sources of income
- Communication exploded – e.g. photocopiers; word processing in early 1980s and then “Federal Express” type
- Faxes
- Inexpensive airline travel
- The Internet
Changes in U.S. Legal Rules, and Collaboration

• Individual states expanded tort law in unique ways

• Plaintiffs’ lawyers became well-coordinated due to better communication and developed more intellectual capital as they learned about and reused their knowledge of industries and companies

• Defendants’ coordination, on the other hand, was generally very poor, and caused significant problems; that situation remains true today
The Litigation Industry In The U.S. Today

- Plaintiffs’ attorneys are vastly more coordinated than are defense attorneys
- American Trial Lawyers Association has over 60 working groups targeting specific types of products and companies
- Discovery yields company papers and testimony by current and former company employees
- Leading plaintiff’s lawyers actually meet and talk
- Some tort lawyers share (or sell) digital copies of testimony or discovery materials
- Some expert witnesses undertake “research” to further the positions of their camps