The Alcoa Study: 1997-present

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Alcoa, Inc.

- A multinational aluminum producer with:
  - >50 locations in 24 states
  - About 120,000 unique employees in the US since 1996; about 200,000 dependents
  - 70% production workers
  - 40% women (majority salaried)
  - 20% non-white
  - Wide array of environmental factors: heat, noise, stress, physical risk, chemicals including carcinogens
  - All identically and richly insured; insurance experiments starting 2004
Stanford-Yale Alcoa Data Vault

**Workplace Safety & Environment**
- Injury rates
- Hygenius workplace samples
- Job Demand Survey

**Health**
- OHM: Cardiovascular data, PFTS, Audiometry, and Workplace Medical Surveillance Files
- Medical Insurance Claims Files
- Disability claims
- Injury Management System

**Financial**
- Payroll (weekly hours rolled up)

**Demographic Data**
- Human Resources: Education, employment history, race etc
Wave 1 Highlights: Focus on traditional occupational health and safety questions

- **Injury**: Major systemic risks: 1) High physical demand 2) *job change* 3) *workweeks over 60 hours* 4) *high BMI* 5) *female* 6) *noise exposed* 7) employees with *chronic disease* 8) plant-level stress

- **Noise**: Low dose noise is more hazardous than high (because of hearing protection)

- **Occupational Disease**: First to study PM2.5, work related asthma, beryllium disease using claims data
**Workplace Safety & Environment**
- Injury experience
- Hygenius workplace samples
- Job Demand Survey

**Financial**
- Payroll (daily hours)
- W-2’s
- 401K and Pension

**Health**
- OHM: Cardiovascular data, PFTS, Audiometry, and Workplace Medical Surveillance Files
- Medical Claims Files
- Attendance record
- Disability claims
- Injury Management System
- Health Risk Scores

**Demographic Data**
- Human Resources
- Dependent Information
Wave 2 highlights: Economic analyses and health services

• Welfare analyses of shifting marginal costs to employees: Selection on adverse health and proclivity to moral hazard blunt cost savings, though welfare loss is modest

• Prevention and Adherence: Predictable spillover victims of marginal cost shifting

• Use of claims data for observational proof of RTCs in real world: Diabetics with optimal quality of care develop complications at a slower rate
Stanford-Yale Alcoa Data Vault

**Workplace Safety & Environment**
- Injury experience
- Hygenius workplace samples
- Job Demand Survey
- Production/Quantity & Quality by month
- Community Health Indices (Census/BRFSS)
- Employee Engagement Survey (annual)

**Financial**
- Payroll (hours)
- W-2’s
- 401K and Pension
- Housing Values/equity
- Links to SSA for pre and post-Alcoa and spouse earnings

**Health**
- OHM: Cardiovascular data, PFTS, Audiometry, and Workplace Medical Surveillance Files
- Medical Claims Files
- Attendance every shift from payroll
- Disability claims
- Injury Management System
- Medicare Claims linked to work-life claims
- Death - NDI
- Health Risk Scores

**Demographic Data**
- SSN – Childhood Locale
- Geocoded address
- Human Resources
- Dependent Information
Wave 3 highlights: Alcoa as a microcosm of the real world

- **Impact of the recession**: Even “survivors” pay a price in physical and mental health

- **Sources of variation in chronic disease incidence by location**: workplace culture matters, but so do childhood and adult social environments

- **Potential impact of anticipated loss/delay in defined benefit pensions**: Alcoans will likely be too sick to work, too poor to retire
It takes a Village: Epidemiologists, Industrial Hygienists, Ergonomists, Statisticians, Economists, Data Managers, Study Coordinators

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