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Governor Matthew H. Mead

## MEMORANDUM

**Date:** July 15, 2016

**To:** Joint Labor, Health and Social Services Interim Committee  
Joint Appropriations Interim Committee

**From:** Thomas O. Forslund, Director   
Wyoming Department of Health

**Subject:** Interim report: State Options for Increasing Value in Healthcare

**Ref:** F-2016-424

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In the Wyoming 2016 Budget Session, Footnote 3 of Section 048 of Senate Enrolled Act 19 requested that the Wyoming Department of Health submit a preliminary report to the Joint Appropriations Committee on State-administered health insurance options. The footnote states:

*3. In consultation with the department of insurance and the administrator of the employees' and officials' group insurance plan within the department of administration and information, the department of health shall study state administered health insurance options for individuals and businesses within Wyoming and any potential cost savings to the state of Wyoming from implementation of various options. The department of health shall summarize the current health insurance market in Wyoming, including provider and plan types. The department shall submit a preliminary report summarizing the findings of the study not later than July 15, 2016 to the joint appropriations committee and a final report to the joint appropriations committee and the legislature not later than November 15, 2016 for consideration as potential legislative action during the 2017 legislative session. This footnote is effective immediately.*

Attached is the requested interim report.

TOF/SJ/ff/jg

c: Governor Matthew H. Mead  
Legislative Service Office (electronic copy)  
State Department Depository (electronic copy)

# STATE OPTIONS FOR INCREASING VALUE IN HEALTHCARE

INTERIM REPORT



Wyoming Department of Health

July 15, 2016

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# EXECUTIVE SUMMARY

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During the 2016 Budget Session, the Wyoming Legislature requested that the Department of Health (the Department) study options for two separate topics: (1) a voluntary multi-payer claims database and (2) expanding the Wyoming Employee's and Officials' Group Insurance Program into a State-administered health insurance plan that other entities (i.e., political subdivisions, private employers, and potentially individuals) could join.

## **Two topics, one study**

These topics are closely-related. Both aim at containing costs and increasing quality in healthcare through market-based approaches. They are also complementary: where a well-designed claims database can provide insights into underlying healthcare costs, payment arrangements and quality, a well-run health insurance plan can be the vehicle to implement policies based on those insights.

Where the final report will explore the benefits and costs of specific policy proposals for each topic, this interim report intends to describe the “how” and “why” a claims database and/or a State-administered health insurance plan might increase healthcare value.

## **Why is value in healthcare a problem?**

The United States spends more on healthcare than any other country, yet national health outcomes are fair to poor compared to other developed countries. Wyoming is not unique in this regard. While the State tends to have average health outcomes,<sup>1</sup> available data indicate that privately-insured Wyoming residents face some of the highest healthcare costs in the country.<sup>2</sup>

There is no clear answer on why this is the case. This indicates a bigger problem: unlike most markets, the health care sector has a lack of readily available and easily-understandable data that can be used to inform decisions on cost and quality.

## **How might a multi-payer claims database add value?**

An effective multi-payer claims database turns raw and often-unintelligible claims data from multiple healthcare payers into information that can be acted upon. As outlined in Part III, the database could provide:

- Situational awareness of cost and utilization trends, by payers, groups, regions and over time.
  - Cost, by provider type or service area, and payment levels, by provider and payer.
  - Utilization rates, from emergency department (ED) visits to inpatient admits and re-admits, to C-section and elective delivery rates, to joint-replacement and spinal fusion rates, etc.
- Identification of the providers who offer the most value to insured members.
  - Overall costs for episodes of care.
  - Standardized pricing comparisons.
  - Quality outcomes, adjusted for patient acuity.
- Proactive identification of high-risk members through predictive risk-scoring.
  - Risk models can be developed from administrative claims data, but could be adapted to use electronic medical records as well.

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<sup>1</sup> UnitedHealthCare's America's Health Rankings, for example, ranked Wyoming 25<sup>th</sup> out of 50 States in 2015. (<http://www.americashealthrankings.org/WY>)

<sup>2</sup> See Part II of this report.

## How would this interact with a State-administered health plan?

An effective State-administered health plan would use this actionable information to direct market-based activities for both the demand and supply-sides, as outlined in Part I of this report. On the demand-side, for example, the health insurance plan could:

- Encourage members to enroll in plans where they are more sensitive to the value of the healthcare they consume (i.e., having more “skin in the game” through higher deductibles and Health Savings Accounts, while retaining incentives to consume higher-value preventive care);
- Develop an effective wellness program to address the underlying individual behaviors that tend to influence health far more than medical care; and
- Target intensive care coordination programs towards the highest-risk members to reduce preventable and wasteful utilization, while carefully tracking cost outcomes against a control group to ensure return-on-investment for the program itself.

On the supply-side, the health insurance plan could:

- Aggregate together previously-fragmented pools of covered lives (i.e., people who are insured) by allowing private employers to voluntarily “buy-in” to the program.
- Strategically direct these covered lives to high-value providers identified by the claims database.
- Use market share to negotiate aggressively with other providers in order to accept sharing more risk for healthcare outcomes.

On the administrative side, the health insurance plan could:

- Pool infrastructure and expertise to effectively run both private- and public-side insurance programs, without the need for sales overhead. As the State Employees’ and Officials’ Group Insurance plan does currently, the plan would operate as a fiduciary to its members, without the need to turn a profit.
- Consolidate eligibility screening to ensure lower-income insureds or their dependents who are eligible for public insurance (e.g. Medicaid) are enrolled in those programs. Depending on uptake<sup>3</sup>, this could result in potential savings to the State due to lower payments to providers and the receipt of Federal matching funds.
- Develop plan variants to smooth the “welfare cliff” separating public and private insurance (e.g. cost sharing could gradually and seamlessly increase with earned income).

## There are tradeoffs

While the costs and benefits of various combinations of claims database and insurance plan options will be explored later, it is important to note in this interim report that “there ain’t no such thing as a free lunch.”

For a claims database or State-administered health insurance plan to be successful or even viable, underlying data must be used to inform real policy action to contain healthcare costs. Each of these actions comes with tradeoffs; in other words, reduced costs for one entity effectively reduces benefits for another. Specifically:

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<sup>3</sup> The Employees’ and Officials’ Group Insurance plan would be required to make an offer of affordable coverage to all employees. “Uptake” refers to employees that decide to reject this coverage in lieu of Medicaid only. This is more likely if cost-sharing and employee contribution requirements for the Employees’ and Officials’ Group Insurance plan were increased.

- A plan that uses its market share to negotiate more favorable payment terms and additional risk sharing will not be popular with providers, particularly if it means sending patients out of State (i.e., per the Wal-Mart example in Part I).
- A plan that uses narrower networks as part of this negotiating strategy may also increase the prevalence of “balance billing,” i.e., out-of-network providers charging the member for the billed charges the plan didn’t pay, a practice prohibited in most provider network contracts.
- If providers lose enough revenue (i.e., healthcare costs are reduced), fewer may be willing to practice in Wyoming, a State with significant healthcare provider shortages.
- A plan that is actually able to compete with fully-insured products will necessarily crowd-out private insurance to some degree, as well as agents and brokers.
- The State (to include the Legislative Service Office, University of Wyoming, community colleges, and other entities) may have difficulty in recruiting and retaining employees if the generosity of its health insurance plan is reduced (i.e., there is more “skin in the game”). Note that, unless savings were re-directed to employee compensation by the Legislature, this would also represent a net reduction in employee’s total compensation.

Any meaningful decision involves weighing tradeoffs. The purpose of both this interim and the final report is to provide an objective description of these potential benefits and costs for Legislative consideration.

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# INTRODUCTION: STUDY SCOPE

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During the 2016 Budget Session, the Legislature requested that the Wyoming Department of Health study two separate topics related to health insurance in Wyoming:

- Examine developing or joining a voluntary claims database for State-funded health insurance plans (e.g. Medicaid, the Wyoming Employee's and Officials' Group Insurance plan).
- Explore expanding the Wyoming Employees' and Officials' Group Insurance Program into a State-administered health insurance option for individuals and businesses within Wyoming.

This section describes how these two topics are closely-related, and why the Department intends to respond to the Legislature with a single coordinated study. Simply put, if the end goal is to contain the growth of healthcare costs in Wyoming and improving the value of services delivered, the two methods have a higher chance of achieving that goal as a consolidated effort.

## Legislative requirements

### *Studying State-administered health insurance*

Footnote 3 of 2016 Senate Enrolled Act 19 (2017-18 Budget Bill) requires the Department of Health to study options for “state-administered health insurance.” The footnote states:

3. In consultation with the department of insurance and the administrator of the employees' and officials' group insurance plan within the department of administration and information, the department of health shall study state administered health insurance options for individuals and businesses within Wyoming and any potential cost savings to the state of Wyoming from implementation of various options. The department of health shall summarize the current health insurance market in Wyoming, including provider and plan types. The department shall submit a preliminary report summarizing the findings of the study not later than July 15, 2016 to the joint appropriations committee and a final report to the joint appropriations committee and the legislature not later than November 15, 2016 for consideration as potential legislative action during the 2017 legislative session. This footnote is effective immediately.

This footnote requires two reports (an interim report on 7/15/2016 and a final report on 11/15/2016), and specifies two distinct tasks:

1. Summarize the current health insurance market in Wyoming, with regards to:
  - Providers (e.g. private insurance, Employees' Group Insurance (EGI), TRICARE, Medicare/Medicaid); and
  - Plan types (e.g. individual, small-group, large-group, self-insured).
2. In consultation with Department of Insurance and EGI, develop options for implementing State-administered health insurance for individuals and for businesses, and evaluate these options for savings to the State of Wyoming.

Implied in the footnote is an additional task:

3. Evaluate potential cost savings to Wyoming businesses -- i.e., interpret the word “State” more broadly than just state government expenditures.

### *Studying a multi-payer claims database*

Footnotes 4(a) and (b) require the Department to study joining or developing a volunteer multi-payer claims database (“MPCD”). The footnotes state:

4. (a) From these general fund appropriations and any reversions in section 303(n) of this act, the director of the department of health may expend up to four hundred forty thousand dollars (\$440,000.00) from any general fund savings identified by the department and certified by the governor for purposes of establishing or joining a multi-payer claims database pursuant to subsection (b) of this footnote. Funds shall only be expended if the department makes the information in the claims database established or joined pursuant to this footnote available to the public. The information made publicly available shall not disclose personally identifiable information but shall include statistical information related to healthcare costs in the state. The department may provide in-kind services for data collection and analysis in lieu of monetary contributions to a multi-payer claims database provider.

(b) In consultation with the department of insurance and the administrator of the employees' and officials' group insurance plan within the department of administration and information, the department of health shall study and, if determined appropriate, join or develop a volunteer multi-payer claims database. The study shall consider only the inclusion of information from the employees' and officials' group insurance plan, Medicaid, and any other health insurance program that receives contributions from state funding sources. The department of health shall report its findings to the joint appropriations committee not later than October 1, 2016.

Footnote 4(a) and (b) together require one report (due 10/1/2016), and specify two distinct tasks:

4. In consultation with Department of Insurance and EGI, study two options (“join” or “develop”) for *State-funded* plan participation in a volunteer multi-payer claims database. Potential State-funded data sources would include:

- Employees’ Group Insurance (EGI)
- Medicaid
- The Wyoming high-risk insurance pool (WHIP program)<sup>4</sup>
- Workers’ compensation
- Department of Corrections medical claims data
- Medicare A/B/D

5. *If deemed appropriate*, join or develop the claims database. \$440,000 in reversions is authorized to fund this activity, as long as statistical information related to healthcare costs in the State is made publicly available.

Implied in the footnote is a broader purpose:

6. Examine how the database can be used to contain or reduce healthcare costs.

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<sup>4</sup> Enrollment in this program has been significantly limited.

## Resulting study scope

While separate, the Department believes that the directives in these footnotes are complementary and should be studied together. Not only do they share the underlying purpose of containing or reducing healthcare costs in Wyoming, but they also have a better chance of actually succeeding when combined together. There are three primary reasons for this:

1. The development of a comprehensive and functional claims database, and, more importantly, the capacity to turn the raw claims data into actionable information, is effectively a prerequisite to developing a viable State-administered health insurance option.
  - In order to offer an insurance product to other employers in Wyoming in a way that minimizes distortions to the current plan<sup>5</sup>, premiums have to be accurately priced to reflect expected medical costs for both existing members and those employers “buying in.” In addition to claims data, this would require additional and ongoing actuarial analysis of existing healthcare costs across demographic groups and plan selections for both Employees’ Group Insurance (EGI) and potential employers who might wish to join the plan.
  - If the State-administered health-insurance option intends to be viable, premiums must be priced attractively for Wyoming employers. To price premiums competitively, the health plan will need to make continual efforts to contain its underlying healthcare costs. This is where actionable information derived from claims data becomes valuable.
2. While a multi-payer claims database would be useful in being able to compare cost and utilization from multiple payers, a State-administered health insurance option could also be a vehicle to gradually implement a volunteer claims database that would make statistical information on the healthcare marketplace publicly available. In this sense, employers would “volunteer” their data by joining the plan because they see an actual benefit in lower healthcare costs, not because they are forced to contribute.
  - The current legal environment (*Gobeille v. Liberty Mutual, 2016*) will not permit the State to mandate self-insured plan participation in any claims database, because federal law applying to self-insured plans (the Employee Retirement Income Security Act of 1974, or ERISA) generally pre-empts state legislation. The decision does not preclude mandatory participation per se, but it means that the federal Department of Labor would be the relevant authority.
  - As shown in Part II of this report, Wyoming has the highest percentage of self-insured lives in the nation. If mandating participation is not an option, the best way to build a comprehensive volunteer database would be the monetary incentive of lower premiums resulting from using the database to contain or lower healthcare costs.
3. Analysis of claims data is critical in being able to understand healthcare costs, but acting on that information and actually containing costs requires implementing specific policy levers. Health plans, for example, must have:
  - The ability to offer and incentivize plans and cost-sharing arrangements that encourage more “skin in the game” and fiscally responsible behavior on the part of the insured.

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<sup>5</sup> The nature of insurance means that true budget-neutrality is impossible. Despite protections (e.g. the statutory “lock-in” period, age-rating premiums, pricing by plan selection, allowing only employer groups initially), there is still a chance of adverse selection (described in Part I): that less-healthy employer groups will find “buying in” to EGI is more attractive than healthier employer groups, who currently pay lower premiums. The addition of less-healthy groups could potentially increase cost to all employers in the pool, including the State.

- The ability to more effectively negotiate payment and risk with providers by aggregating market share and using it strategically.
- The ability to influence healthcare utilization for larger numbers of insureds through effective wellness programs and care coordination for “super utilizers,” (e.g., individuals with recurring high healthcare costs).

For these reasons, the Department intends to examine the footnote requirements in one comprehensive study, with an interim report on July 15th, and a final report on October 1st. The final report will contain four parts:

**Part I: What is health insurance?**

This section is a primer on the concepts, terms, and unique problems faced by health insurers, and will serve as a reference for the remainder of the study. It will also describe the specific levers available to insurers for influencing healthcare costs.

**Part II: Health insurance in Wyoming**

This section describes, per the footnote, the insurance market in Wyoming, to include estimated insurance coverage, market share, and comparisons with other states.

**Part III: Claims database options**

This section provides background on the purposes and functions of a multi-payer claims database, including:

- Healthcare costs (as a function of price and utilization) as the primary problem that a multi-payer claims database is attempting to solve;
- How actionable information is extracted from raw claims data; and
- Legal considerations.

The section will also evaluate the options for “joining” or “developing” a claims database.

**Part IV: State-administered health insurance plan options**

This section will provide background on the current operation of the State of Wyoming’s Employee’s and Officials’ Group Insurance Plan and then describe the range of State-administered health insurance options. These range from:

- Opening up the Plan to “buy-in” from other government entities and private sector employers;
- Allowing individuals to purchase coverage under a 1332 “Innovation Waiver”;
- Establishing an all-payer rate setting commission; and
- Other options.

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# PART I: WHAT IS HEALTH INSURANCE?

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## Summary

The purpose of health insurance is to turn the risk of potentially devastating medical expenses into a stable monthly cost. Unlike other insurance products, however, health insurance comes with a set of market failures, such as moral hazard and adverse selection, which force insurers to adopt a variety of strategies to try and control underlying health costs. There is no silver bullet in these strategies; all involve tradeoffs between cost, access, and patient choice.

## Purpose No. 1: to spread risk

The fundamental purpose of any insurance is to spread risk. Health insurance is no different, in that it transforms the varying probability and magnitude of healthcare costs into a stable monthly premium by spreading that risk across a pool of individuals.

### *History of health insurance*

Although threats to health have always been a part of the human experience, health insurance is a relatively recent innovation. The first products began as simple cash benefits for disability and illness in the late 19<sup>th</sup> century, gradually evolved into pre-paid hospital stays in the early 20<sup>th</sup> century, and emerged fully in the 1920s and 1930s. Interestingly, hospitals (Blue Cross) and physician groups (Blue Shield) were the early industry leaders, and a primary purpose of their insurance products was to ensure stable revenues for their provider organizations.<sup>6</sup>

Given that insurance as a distinct industry dates back to before the 12<sup>th</sup> century,<sup>7</sup> the sector's relatively late coverage of medical care would seem surprising. But the reasons are intuitive:

- Despite the name, “health insurance” does not actually insure health; it insures the cost of medical care. And because medicine did little to actually improve health before the 20<sup>th</sup> century, it was not widely demanded.<sup>8</sup> It is no coincidence that the first health insurance plans developed with the advent of effective hospital care.<sup>9</sup>
- Before 1960, most healthcare costs were low enough to be paid out-of-pocket. Healthcare costs have increased since, and there are now few practical alternatives to being insured. Today, while American healthcare spending exceeds 17% of Gross Domestic Product (GDP), the total percent paid out-of-pocket is below 20%.<sup>10</sup>

Figure 1, on the next page, illustrates the increasing role private and public health insurance has played in paying for healthcare as real (inflation-adjusted) costs have increased since 1960.<sup>11</sup> Note the diminishing *relative* role of out-of-pocket spending, particularly for hospital spending, as costs have increased.

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<sup>6</sup> Note that less than 10% of Americans were covered by private health insurance before WWII. McGuire, Thomas. “Demand for health insurance.” *Handbook of Health Economics* (Volume 2, Chapter 5). Elsevier Science. 2012. 321.

<sup>7</sup> Although Hammurabi's Code of Laws included some of the first quasi-insurance provisions (bottomry and respondentia), the first explicit insurance contracts were developed in northern Italy in the 12<sup>th</sup> century to cover shipping losses.

<sup>8</sup> D.M. Cutler and R.J. Zeckhauser. “The anatomy of health insurance.” *Handbook of Health Economics* (Volume 1. Chapter 11.) Elsevier Science. 2000. 572.

<sup>9</sup> McGuire, 321.

<sup>10</sup> McGuire, 323.

<sup>11</sup> Data from CMS National Health Expenditures tables, 1960-2011, adjusted using the BLS Consumer Price Indices for hospital, physician and pharmacy spending.

**Figure 1:** Inflation adjusted national per-capita health expenditures, by type of service and payer

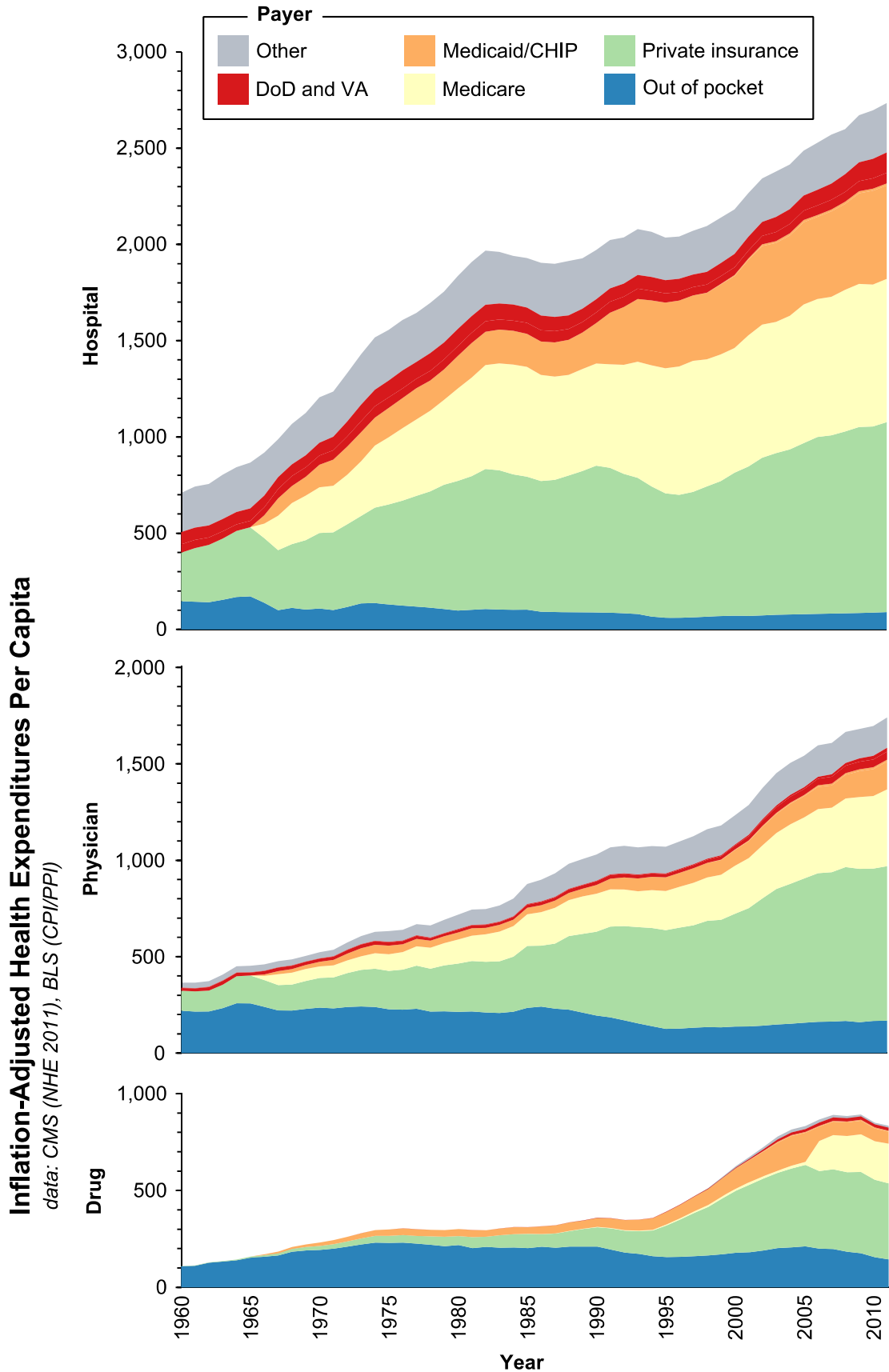
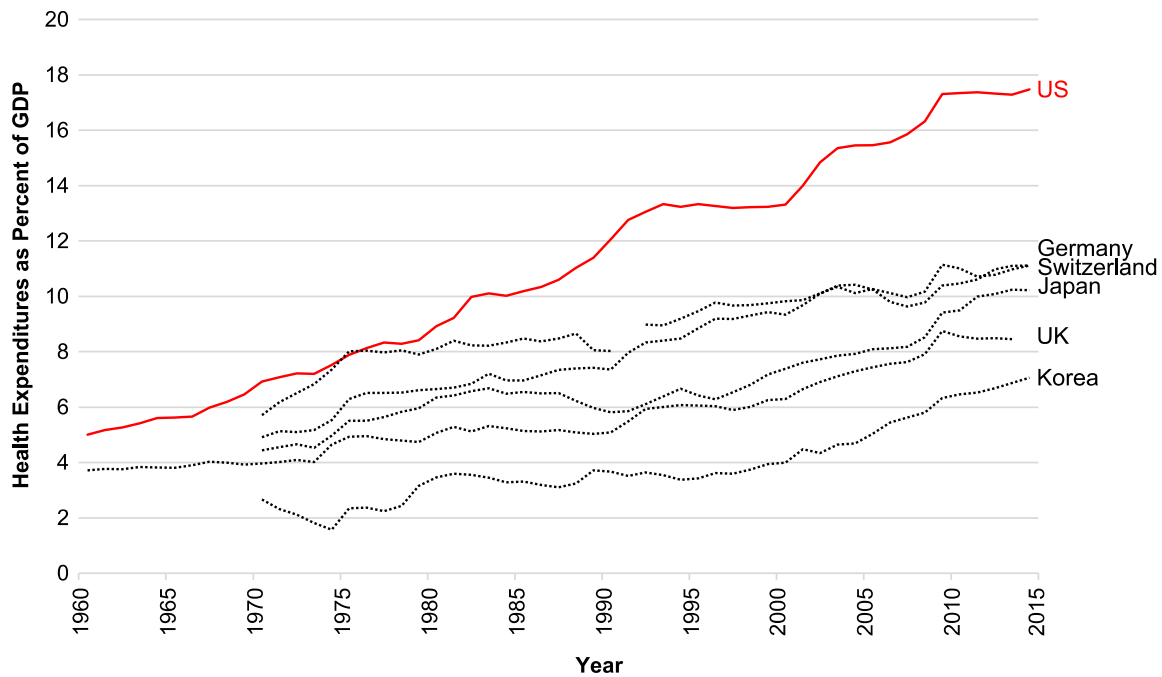


Figure 2, below, illustrates how healthcare expenditures as a share of total economic activity have increased from approximately 5% before 1960 to over 17% of GDP today. A representative sample of other developed countries is shown for comparison. Note that, while healthcare expenditures as a share of GDP have increased in all countries, the United States remains an outlier in terms of the sector’s growth over time.

**Figure 2:** Health expenditures as a percent of total GDP, 1960 - 2014  
*(data: CMS National Health Expenditures, Federal Reserve Bank of St. Louis, OECD Health Statistics)*



*The variability of healthcare costs*

It is important to note that Figures 1 and 2 depict average medical costs. These average costs mask underlying variation -- risk -- in the insured population, which is perhaps more important in explaining the value of health insurance. While many people use no healthcare for long periods of time, a small fraction may consume millions of dollars’ worth of medical care in days. Individuals also move in and out of no-cost, low-cost, and high-cost categories over time.<sup>12</sup>

Using Wyoming Medicaid as an example<sup>13</sup>, the table below illustrates how the top 5% of members consume 51% of medical expenditures.

**Table 1:** Wyoming Medicaid medical cost distribution, State Fiscal Year 2015.

Percent of members	Percent of costs
Top 5%	51%
Next 10% (85 <sup>th</sup> -95 <sup>th</sup> percentiles)	25%
Bottom 85%	23%

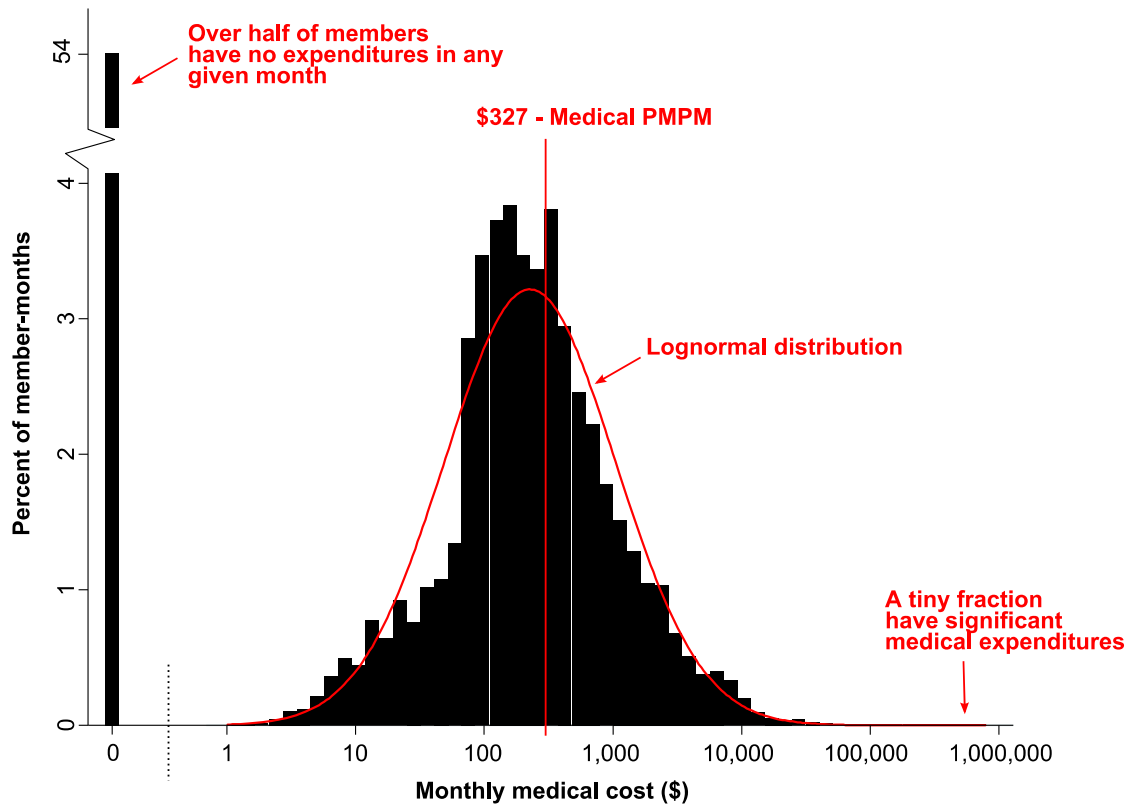
<sup>12</sup> Johnson, et al. “For Many Patients Who Use Large Amounts of Healthcare Services, The Need is Intense Yet Temporary.” *Health Affairs*. 2015. (<http://content.healthaffairs.org/content/34/8/1312.short>)

<sup>13</sup> Medicaid claims data is readily available and the concepts here are the same between public and private insurance.

Figure 3, below, illustrates that the distribution of total medical costs for the same Medicaid population is approximated by a log-normal distribution. This distribution might look like the normal “bell curve,” but the horizontal axis increases by multiples of 10, so it is, in fact, highly-skewed to the right. Both public and private healthcare plans have similarly-skewed distributions, though more complex models often fit the data better.<sup>14</sup>

Despite the large variation in costs -- over half of members having no expenditures at all, to a tiny fraction of members consuming almost a million dollars in any given month -- the average Wyoming Medicaid monthly medical cost from Figure 3 is \$327 per member.<sup>15</sup>

**Figure 3:** Distribution of monthly medical costs for Wyoming’s Medicaid population, SFY 2015



This average is also known as the **per-member per-month**, or **PMPM**. PMPM costs are the foundation for measuring the expenses of any private or public insurance plan. This study will discuss PMPM at length in later sections; the point of this section is to underline that health insurance serves a valuable function by transforming the risks above -- which would otherwise be borne by individuals and families -- into a stable monthly average cost.<sup>16</sup>

<sup>14</sup> A good summary of more sophisticated statistical methods used for dealing with these unique distributions can be found in Griswold, et. al. “Analyzing healthcare costs: a comparison of statistical methods motivated by Medicare colorectal cancer charges.” *Biostatistics*. 2004 (<http://www.biostat.jhsph.edu/project/seermed/paper/pap033104.pdf>)

<sup>15</sup> Wyoming Medicaid SFY 2015 PMPM Report.

<sup>16</sup> Cutler and Zeckhauser note that the value of insurance to individuals increases along with (1) their risk aversion and (2) the variability of medical costs. 574.

*Complications: moral hazard, information asymmetry and adverse selection*

If pooling risk were the only function of health insurance, the simplest and most efficient plan would be an **indemnity policy** that reimbursed a fixed amount of money for a given illness. In this type of policy, similar to auto insurance, insurers simply pay the bills, assuming that the amount paid equals the cost of the most appropriate treatment for an individual's disease.<sup>17</sup> Health insurance, however, has unique "market failures", or economic complications, which make effective policy design significantly more challenging:

- The more risk (e.g. share of medical costs) an insurer assumes, the more likely it is to incur additional costs or waste through the actions of its insureds. This phenomenon is known as **moral hazard**.<sup>18</sup> Simply put, people are less likely to care about the costs of medical care when someone else is paying the bill.<sup>19</sup> As a result, they consume more services than they would have, had they paid the entire bill themselves.
  - Moral hazard is ultimately a tradeoff between risk assumed and cost incurred; the flip side is that the more risk is placed on insureds (i.e., by increasing "skin in the game"), the more likely catastrophic medical bills become -- and the less value the insureds will place on the risk-spreading function of insurance.
  - Moral hazard is more of a problem at lower levels of care -- routine physician's visits, elective surgeries, etc. -- as opposed to higher levels of care, like life-saving interventions.<sup>20</sup>
- In the medical care industry, insurers act as an intermediary between the patient and the provider, paying for services rendered by the provider to the patient. In these transactions, there are significant **information asymmetries** (differences) between the patient, the provider, and the insurer that lead to inefficient use of healthcare:
  - The patient has more knowledge of his or her own health-related habits than the physician or the insurer, but less information as to the specific diagnosis, the treatments available, and the costs of those treatments.
  - The provider has more knowledge of the patient's diagnosis and the range of treatments available to the patient, but often less knowledge of the actual costs of the treatments. And depending on the payment methodology, providers may be incentivized to produce more volume.
  - The insurer has more knowledge of costs across the entire insured population and how those costs will be passed on to the patient in terms of future premiums.
- Because of these information asymmetries, both the patient and the insurer are in a **principal-agent relationship** with the provider:

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<sup>17</sup> Cutler and Zeckhauser, 575.

<sup>18</sup> The name "moral hazard" is archaic -- it has little to do with the ethics, morality, or danger. Most experts believe that "moral" originally referred to a psychological state of mind (similar to "morale"), and "hazard" refers to risk or chance. Moral hazard therefore refers to the idea that medical cost outcomes are related more to the insured's state of mind rather than chance. (Kongsvedt. *The Essentials of Managed Health Care*. 6<sup>th</sup> Ed. 2012. Pg xiv.)

<sup>19</sup> Cutler and Zeckhauser define moral hazard as "the likely malfeasance of an individual making purchases that are partly or fully paid for by others." 576. The concept originates with Kenneth Arrow (1963) - <https://assets.aeaweb.org/assets/production/journals/aer/top20/53.5.941-973.pdf>

<sup>20</sup> Nyman, J.A. "Is 'Moral Hazard' Inefficient? The Policy Implications Of A New Theory." *Health Affairs*. 2004. (<http://content.healthaffairs.org/content/23/5/194.full>)

- The patient, as a principal, expects the provider (agent) to act in her best interests (i.e., restoring health) by providing the *most effective care possible*.
- The insurer, as a principal, expects the provider to act in its interests by conserving resources and providing only the *most efficient treatment necessary* to restore the patient to health.

In theory, of all the effective medical treatments available, one will be the most cost-effective. And again, the simple indemnity plan would work well if the most cost-effective treatment were both known and consistently chosen. The problem is that, in practice, doctors and patients frequently have aligned interests which differ from the insurer. As Cutler and Zeckhauser note, “the result is that patients and physicians want essentially all care that improves health, respectively ignoring and welcoming resource expenditures.”<sup>21</sup>

- The third problem is that health insurance is the only industry where the identity and character of its customers fundamentally drive its underlying costs; older and sicker people are more costly to insure than younger and healthier people. Because they expect to use more medical services, sicker people are disproportionately drawn to more generous insurance plans. The increasing concentration of higher-cost people in the pool drives up the average cost of those plans; the increasing premiums, in turn, drive away healthier individuals, which further concentrates the pool and makes the plan even more expensive. This phenomenon is known as **adverse selection**.<sup>22</sup>
  - While it usually doesn’t result in the “death spiral” described above, the net effect is that more generous insurance plans (which tend to attract less-healthy people) are typically priced higher than they otherwise would be for their benefit level. Conversely, in situations where employers subsidize most of the cost of the health plan, individuals will choose the more generous benefit plan more often, costing the employer (and ultimately the employee, through foregone wages) more than is economically optimal.<sup>23</sup>
  - In addition, insurers have incentives to adjust their plans and limit benefits (known as “stinting” or “skimping”) in ways to attract healthier enrollees.
  - Health insurance market reforms (as recently as the Affordable Care Act) have mitigated the problem of adverse selection to some degree:
    - The individual mandate requires that even healthy individuals purchase insurance. Tax penalties, however, are not yet high enough to fully mitigate adverse selection.
    - Requiring both the provision of the ten (10) essential health benefits<sup>24</sup> and guaranteed issue (i.e., for individuals with pre-existing conditions) has curtailed stinting.
    - Pooling the oldest and sickest members of society under public insurance programs (Medicare/Medicaid and high-risk pools).<sup>25</sup>

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<sup>21</sup> Cutler and Zeckhauser, 589.

<sup>22</sup> Cutler and Zeckhauser, 607.

<sup>23</sup> Cutler and Zeckhauser, 607.

<sup>24</sup> To wit: (1) Ambulatory patient services, (2) emergency services, (3) hospitalization, (4) pregnancy, maternity and newborn care, (5) mental health and substance abuse services, (6) prescription drugs, (7) rehabilitative and habilitative services and devices, (8) laboratory services, (9) preventive and wellness services, and chronic disease management, and (10) pediatric services, including dental and vision for kids.

<sup>25</sup> Previously, these individuals were essentially uninsurable. Zelizer, J.E. “How Medicare Was Made.” [The New Yorker](http://www.newyorker.com/news/news-desk/medicare-made). 15 February 2015. (<http://www.newyorker.com/news/news-desk/medicare-made>)

## Purpose No. 2: to control costs

The market failures described in the previous section motivate the second major function of health insurers: to control the underlying costs of healthcare in order to price their insurance product competitively. These controls are widely implemented on both the demand and supply side of the market, and have moved the industry beyond the simple indemnity model since the early 20<sup>th</sup> century.

### *Demand-side: “skin in the game”*

In order to deal with the problem of moral hazard, discussed in the previous section, insurers can attempt to incentivize the insureds to make fiscally responsible choices in their own healthcare. Patient **cost-sharing** is the primary demand-side approach with which most people are familiar. The traditional cost-sharing mechanisms include:

- **Deductibles**, a fixed dollar amount during a benefit period that an insured has to pay before the insurer begins to pay.
  - The economic theory behind deductibles is that they sensitize insureds to the very first dollars of healthcare they begin consuming; this was confirmed empirically in the RAND Health Insurance Experiment of the early 1970s, though savings came from reductions in the overall quantity of services consumed rather than insureds finding lower prices.<sup>26</sup>
  - Today, **consumer-directed health plans (CDHPs)** are increasingly coupling high deductibles with **Health Savings Accounts (HSAs)** that allow individuals to save for health expenses on a tax-advantaged basis.<sup>27</sup> Recent studies have confirmed significant savings for these plans, but caution against reduced consumption of important preventive care.<sup>28</sup>
- **Co-insurance**, which requires the insured to pay a fixed percentage of the cost of medical services received, often after a deductible. Co-insurance is typically applied to services where medical necessity is less clear, in order to discourage overutilization on the margin.<sup>29</sup>
- **Co-payments** (“co-pays”), which require the insured to pay a fixed dollar amount whenever a medical service is received.
  - Co-pays are more useful to control utilization in plans where payment is *not* based on fee-for-service model. Co-insurance, for example, does not make sense in a capitated environment (described in the next section).<sup>30</sup>
  - Co-pays are also frequently used to control drug utilization; for example, higher co-pays can be applied to brand-name drugs.
- **Maximum-out-of-pocket (MOOP)** ceilings, which limit cost-sharing requirements to a certain threshold.

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<sup>26</sup> Brook et al. “The Health Insurance Experiment.” RAND Health Research Brief RB-9174-HHS. [http://www.rand.org/pubs/research\\_briefs/RB9174.html](http://www.rand.org/pubs/research_briefs/RB9174.html)

<sup>27</sup> For 2016, the minimum deductible for an individual to qualify for an HSA is \$1,300.

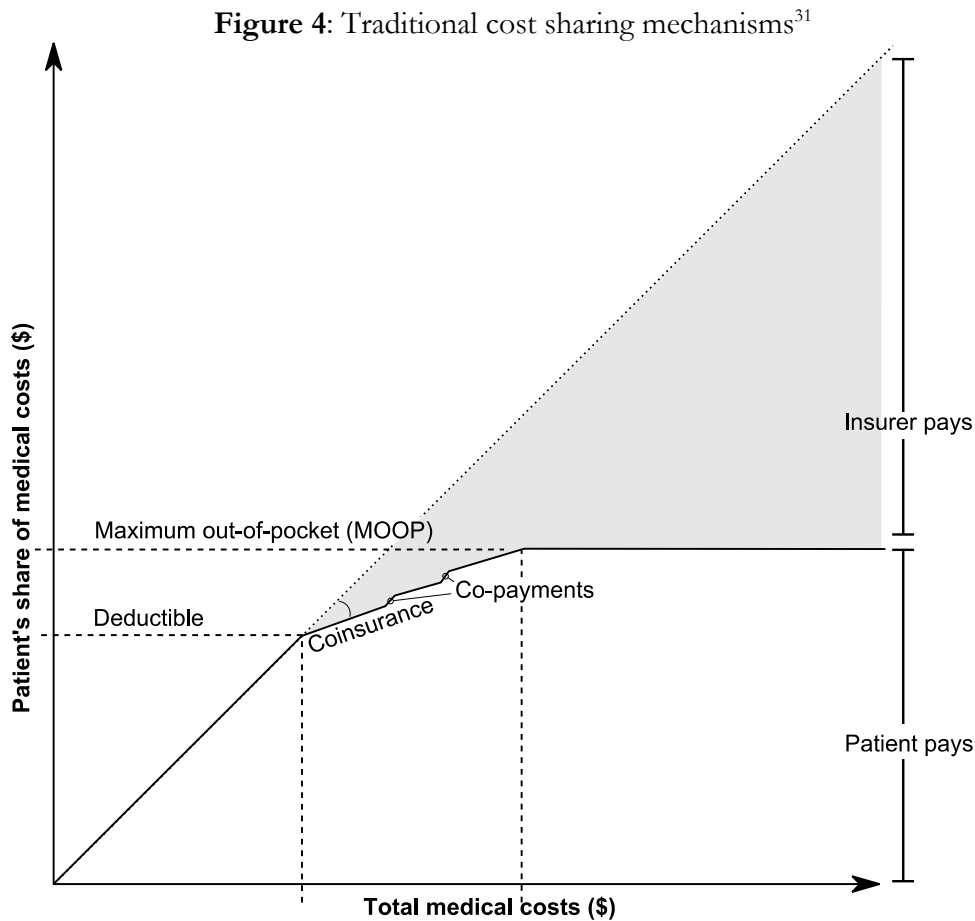
<sup>28</sup> “Skin in the game: how Consumer-Directed Plans affect the cost and use of healthcare.” RAND Health Research Brief 9672. [http://www.rand.org/pubs/research\\_briefs/RB9672/index1.html#fn2](http://www.rand.org/pubs/research_briefs/RB9672/index1.html#fn2)

<sup>29</sup> Knapp. “Medical Benefits in the United States.” Group Health Insurance. 5<sup>th</sup> edition. ACTEX. 2007. 103

<sup>30</sup> Knapp. 103.

- Moral hazard increases significantly after an individual's out-of-pocket maximum has been reached in any given year. Once the plan begins to pay 100 percent for all covered services, insureds' price sensitivity for medical services is effectively eliminated, and convenience becomes a primary motivator. This accelerates the consumption of inappropriate or avoidable medical services (e.g. an emergency room visit in lieu of a primary care provider visit) and thereby increases health care costs.

Patient cost-sharing mechanisms are visualized on Figure 4, below, with total medical costs ultimately split between the patient and the insurer. Note that, on average, insurers pay over 80% of medical costs, so the graphic is not to scale in this sense.



While cost-sharing can manifest itself in a bewildering array of plans with different co-pays, deductibles, and co-insurance, the total average amount of cost sharing in any given plan can be measured by what is known as **actuarial value**, or **AV**.

- This is simply the percentage of total expected medical costs that the plan will cover, versus what is expected out-of-pocket from all of the insureds in that plan.<sup>32</sup> In claims data, it is measured by the ratio of total **paid claims** (amount paid by the insurer) to total **allowed claims** (total paid to the provider by both the insurer and the insured).

<sup>31</sup> This figure is updated from the graphic found in Cutler and Zeckhauser, 585.

<sup>32</sup> <https://www.healthcare.gov/glossary/actuarial-value/>

- Note that actuarial value is based on averages for a standard population, and does not predict the cost-sharing faced by any particular individual.<sup>33</sup>
- In addition to standardizing the required ten essential health benefits covered by insurance, one of the major effects of the Affordable Care Act was to standardize the determination and classification of actuarial value. This was done primarily to ensure that consumers had apples to apples choices when shopping for health plans on the Exchange; that is, to reduce information asymmetries between the insured and insurers. The ACA classifies plans into “metal levels” based on their AV, as shown in Table 2, below.

**Table 2:** Actuarial values and metal levels on the Exchange

AV	Metal Level	Notes
<60%	Catastrophic	Per 1302(e) of the ACA, the individual must be under 30, not have access to affordable coverage (premiums < 8% of household income) and receive a hardship waiver on the Exchange.
60%	Bronze	
70%	Silver	
73%	CSR73	Cost-sharing reduction (CSR) subsidies for individuals with income between 201 - 250% of the Federal Poverty Level (FPL).
80%	Gold	
87%	CSR87	CSR subsidies for individuals between 151-200% FPL.
90%	Platinum	
94%	CSR94	CSR subsidies for individuals between 101-150% FPL

- For comparison with public plans, the AV for traditional Medicare (A/B) is approximately 84%, though Medicare beneficiaries have no out-of-pocket maximum.<sup>34</sup>
- The AV for children on Wyoming Medicaid approaches 100% -- the plan covers almost all healthcare costs, with few co-pays and no deductibles. While some approaches to Medicaid expansion in other states (e.g. Healthy Indiana) have proposed increased cost-sharing for newly-eligible adults, the degree of cost-sharing is usually limited by the Centers for Medicare and Medicaid Services (CMS), and the actuarial value ranges from approximately 95-98%.
- The AV for the State of Wyoming Employees’ and Officials’ Group Insurance Program are as follows:
  - Option 1: \$350 deductible - 86.7%
  - Option 2: \$750 deductible - 84.4%
  - Option 3: \$2,000 deductible - 81.4%
  - Option 4: \$1,500/\$3,000 high-deductible health plan - 79.5%

<sup>33</sup> American Academy of Actuaries. Fact sheet on actuarial value. April 1<sup>st</sup>, 2013. [https://www.actuary.org/files/Actuarial\\_value\\_basics\\_for\\_NAIC\\_040113.pdf](https://www.actuary.org/files/Actuarial_value_basics_for_NAIC_040113.pdf)

<sup>34</sup> Bailey, Daniel. “Actuarial Value and the Actuarial Value of Original A/B Medicare.” *In the Public Interest*. Jan 2014.

### *Demand-side: encouraging price shopping*

In addition to traditional cost-sharing mechanisms, newer tools are beginning to emerge that encourage insureds to “shop around” for certain procedures. If total healthcare costs are considered simply as a function of price and quantity (depicted below), newer cost-sharing mechanisms tend to focus consumers more on the *price* of the service consumed rather than the *quantity* of services themselves.

$$\text{Total Healthcare Cost} = \text{Price} \times \text{Quantity}$$

The most promising approach in this area has been **reference pricing**. This resembles a “reverse deductible” applied to certain uncomplicated<sup>35</sup> and non-emergent bundles of procedures (e.g. head/neck MRI, knee and hip replacements). These procedure bundles are known as “**shoppable**” because insureds have the time and (potentially) the inclination to shop around for them. An ER visit or unexpected hospital stay, in contrast, would not be “shoppable.” Reference pricing comes in two “flavors”: horizontal and vertical.

- **Horizontal reference pricing** encourages price shopping across providers. Typically, the insurer uses its own data to estimate a “reference” price for each bundle that is high enough to ensure adequate access in its network, but lower than many of the outliers -- the 75<sup>th</sup> percentile, for example. If the insured prefers a provider whose allowed charge exceeds the reference price, the insured would be responsible for the difference.
  - The most famous example of horizontal reference pricing was implemented by CalPERS, the State of California’s pension and health insurance plan, for hip and knee replacements, knee arthroscopies, and colonoscopies. For knee replacements, CalPERS found variation between a 5<sup>th</sup> percentile cost of \$12,588 and a 95<sup>th</sup> percentile cost of \$74,721 and set its reference price at \$30,000. Post implementation, the 95<sup>th</sup> percentile price dropped to \$40,302.<sup>36</sup> In the first two years, CalPERS estimated its savings for knee and hip replacements at \$2.8 million.<sup>37</sup>
  - A second example is the bundled payment arrangement worked out between a consortium of large employers (including Lowe’s and Wal-Mart) and four well-known, high-quality hospitals. In the arrangement, the hospitals offer relatively-low fixed-prices for knee and hip replacements, and the employer consortium directs their insureds to these hospitals by covering all cost-sharing and travel expenses.<sup>38</sup> Lowe’s had previously made a similar deal with the Cleveland Clinic for cardiac procedures,<sup>39</sup> and Wal-Mart had done the same for transplants at the Mayo Clinic.<sup>40</sup>
  - The Department of Labor, which sets guidelines for ERISA plans, does not consider reference pricing as counting against ACA maximum-out-of-pocket limits, as long as reasonable standards for access and quality are met.<sup>41</sup>

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<sup>35</sup> This means those bundles with substantial variation in price, but little difference in quality -- or at least are implemented in a uniform fashion across providers. Fronstin and Roebuck. “Reference pricing for healthcare services: a new twist on the defined contribution concept in employment-based health benefits.” Employee Benefit Research Institute. Issue Brief. April 2014, No. 398.

<sup>36</sup> <http://www.nga.org/files/live/sites/NGA/files/pdf/2013/1306StateEmployeeAndRetireeHealthCareCowling.pdf>

<sup>37</sup> Robinson and Brown. “Increases in consumer cost sharing redirect patient volumes and reduce hospital prices for orthopedic surgery.” HealthAffairs. August 2013. Vol. 32 No. 8. <http://content.healthaffairs.org/content/32/8/1392.abstract>

<sup>38</sup> <http://www.beckershospitalreview.com/finance/lowe-s-wal-mart-strike-deal-with-4-hospitals-for-hip-knee-replacements.html>

<sup>39</sup> <http://www.beckershospitalreview.com/hospital-physician-relationships/what-makes-a-hospital-attractive-to-employers.html>

<sup>40</sup> [http://corporate.walmart.com/\\_news\\_/news-archive/2013/10/08/walmart-lowes-pacific-business-group-on-health-announce-a-first-of-its-kind-national-employers-centers-of-excellence-network](http://corporate.walmart.com/_news_/news-archive/2013/10/08/walmart-lowes-pacific-business-group-on-health-announce-a-first-of-its-kind-national-employers-centers-of-excellence-network)

<sup>41</sup> See: [https://www.cms.gov/CCIIO/Resources/Fact-Sheets-and-FAQs/aca\\_implementation\\_faqs19.html](https://www.cms.gov/CCIIO/Resources/Fact-Sheets-and-FAQs/aca_implementation_faqs19.html) and <https://www.dol.gov/ebsa/faqs/faq-aca21.html>

Theoretical savings from reference pricing approach 5% of total healthcare spending; the technique is limited by the number of procedures that are theoretically “shoppable” (approximately 30%) and the fact that it works by drawing in outliers closer to the reference price rather than reducing the overall average.<sup>42</sup>

Critiques of reference pricing center around the analytical difficulties of ensuring that quality and access requirements are maintained, the logistical problems of educating patients on their potential liabilities, and whether or not actual savings are worth the additional administrative cost.<sup>43</sup>

- **Vertical reference pricing** attempts to incentivize consumer price shopping across therapies. A simpler and more common form of this pricing structure is in drug formularies, where consumers have to pay higher prices for brand-name drugs when similarly-effective generics are available. Vertical reference pricing would expand this model to other therapies (i.e., including procedures), and set the reference at the average cost of the most effective therapy for a given condition.<sup>44</sup> This price might vary by provider, allowing freedom of the insured to stick with a preferred physician or hospital, but would give the insured an incentive to stick to the most effective therapy -- while retaining the freedom to attempt less-proven therapies if the insured were willing to pay the difference.
  - One example where vertical reference pricing could be applied would be the case of robot-assisted surgery (the robot is depicted in Figure 5, below). In a study of 260,000 hysterectomy patients, robot-assisted surgeries were shown to be no more effective at reducing complications than traditional laparoscopic procedures, but cost approximately \$2,000 more to perform (median cost of \$8,868 vs. \$6,679)<sup>45</sup>. In this hypothetical example, the insurer would set the reference price at the traditional laparoscopic price and the insured would pay the difference for the robot if so desired.

**Figure 5:** A depiction of a robot-assisted surgical system.



<sup>42</sup> “Reference pricing: a small piece of the healthcare price and quality puzzle.” National Institute for Healthcare Reform. Research Brief No. 18, Oct. 2014. <http://www.nihcr.org/index.php?download=1tclf375>

<sup>43</sup> See <http://healthaffairs.org/blog/2015/03/09/go-slow-on-reference-pricing-not-ready-for-prime-time/>

<sup>44</sup> Bagley, Chandra and Frakt. “Correcting signals for innovation in healthcare.” The Hamilton Project: Discussion Paper 2015-09. October 2015. [http://www.hamiltonproject.org/assets/files/correcting\\_signals\\_for\\_innovation\\_in\\_health\\_care\\_bagley.pdf](http://www.hamiltonproject.org/assets/files/correcting_signals_for_innovation_in_health_care_bagley.pdf)

<sup>45</sup> Wright, et al. “Robotically assisted vs laparoscopic hysterectomy among women with benign gynecologic disease.” Journal of the American Medical Association. Feb. 20, 2013. (<http://jama.jamanetwork.com/article.aspx?articleid=1653522>)

### *Supply-side: aligning provider and payer incentives*

Insurer's actions on the supply-side tend to range widely. Most insurers attempt to control utilization through direct oversight of provider medical decision-making. More sophisticated methodologies attempt to address the principal-agent problem discussed previously; i.e., by trying to align provider incentives with those of the insurer.

### *Supply-side: direct oversight*

The most basic way to address the principal-agent problem is through direct oversight. This goes by various names -- gatekeeping, case management, prior authorization, utilization management (UM) or utilization review (UR) -- but all of these essentially involve an impartial outside party reviewing the decision of the medical professional for clinical appropriateness.

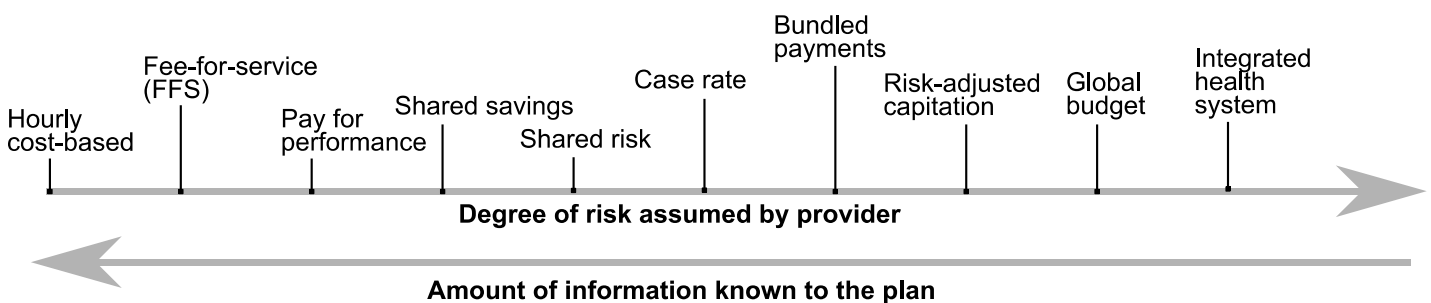
- **Gatekeeping** requires that insureds receive referrals for specialty care, lab tests, imaging, etc.
- **Case management** involves an independent party focusing exclusively on the coordination of medical benefits for individuals with expensive or poorly-managed conditions.
- **Prior authorization** requires either the insured, the provider, or both receive approval from the insurance plan before beginning certain treatments.
- **Utilization management (UM) or utilization review (UR)** attempts to evaluate the appropriateness and medical necessity of treatment throughout the process, and includes activities such as discharge planning, care coordination, and peer review.

### *Supply-side: negotiating provider payments*

A more subtle way of addressing the principal-agent problem is changing how providers are paid, specifically by adding more risk for utilization and health outcomes to the provider. This attempts to align the provider's (agent's) interests with that of the payer (principal) when it comes to the cost of care.

Over the last fifty years, hundreds of different methodologies have been introduced by payers, think tanks, and consultants. Generally speaking, most methodologies can be grouped and visualized on a continuum of risk, as shown in Figure 6, below.

**Figure 6:** Provider payment risk continuum



It is important to note that the relative position on the continuum merely reflects the amount of risk (typically financial) assumed by the provider. Generally speaking, as providers assume more risk for service delivery, the less granular detail on utilization will be known to the insurer.

Further, while each methodology has its advantages and disadvantages, there are not clearly dominant or “better” methodologies. Changing provider payment methodologies is not an easy way to lower healthcare costs; the methodology needs to be considered in terms of the overall goal and the supporting policies.

Descriptions of each of these mechanisms follows:

- **Hourly.** The simplest way to pay providers would be for hours of time expended on patient care. This method is rarely used in practice, but is mentioned here to anchor the far end of the spectrum, where providers would bear no risk for either the resources consumed in providing care or for the outcomes of the patient.
- **Fee-for-service (FFS)** is the most common method of payment, particularly in Wyoming. In this system, providers are reimbursed a negotiated price for a given product (i.e., surgical procedure or office visit). A small amount of risk is introduced -- providers are paid on a “piece-work” basis, not the amount of time or effort put into the product -- but fee-for-service has been widely criticized for encouraging overutilization because providers have a fundamental incentive to generate volume.

While the “services” in fee-for-service have been more or less standardized since 1966 under the American Medical Association’s Current Procedural Terminology (CPT) system, the “fee” part has evolved over time.

- Traditionally, physician fees have been based on “**usual, customary and (or) reasonable**” (UCR) charges.<sup>46</sup> To determine what charges were “reasonable,” insurers would often examine the distribution of charges in a given area, i.e., comparing the 25<sup>th</sup> percentile, the median and the 75<sup>th</sup> percentile, then negotiate a contractual percentage discount off the billed charges. “Usual, customary and reasonable” is therefore prone to fee inflation -- higher charges result in a higher percentiles, which then lead to higher payments.
- In 1985, the then-Health Care Finance Administration (now CMS), commissioned Harvard University to develop a standardized alternative to UCR charges.<sup>47</sup> The resulting **Resource-Based Relative Value Scale (RBRVS)** quantifies the relative amount of both technical (e.g., surgery) and cognitive (e.g., patient evaluation) “work” that goes into each procedure. It also balances this work (54%) with practice (41%), and malpractice (4%) expenses. Every five years, the American Medical Association’s Relative Value Update Committee (“the RUC”) adjusts the relative weights for various procedures. The RBRVS was implemented for Medicare in 1992, and has become standard for physician billing for both public and private payers.<sup>48</sup>
- Generally speaking, the more negotiating power an insurance has, the less it will prefer “percentage of billed charges” and the more it will prefer a fixed fee schedule.
- Payments to hospitals under fee-for-service have traditionally come from the hospital’s “**chargemaster**,” an itemized list of over 5,000 different facility billing codes and their respective charges. These charges rarely reflect actual cost because cost accounting is difficult to accomplish in the hospital environment, and there is a significant amount of cross-subsidization that occurs between hospital cost centers.<sup>49</sup> As with physician payments, insurers in Wyoming typically negotiate contractual discounts off billed charges.

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<sup>46</sup> Gawande, Atul. Better: A Surgeon’s Notes on Performance. Picador. 2007. 115.

<sup>47</sup> Hsiao, William, et. al. “Results, potential effects and implementation issues of the resource-based relative value scale.” *Journal of the American Medical Association*. Oct. 28, 1988.

<sup>48</sup> Omnibus Budget Reconciliation Act of 1989 (<https://www.congress.gov/bill/101st-congress/house-bill/3299>)

<sup>49</sup> Kongstvedt. “Provider Payment.” Essentials of Managed Health Care. 6<sup>th</sup> Ed. 2012. Pg 114.

- Another prevalent hospital fee-for-service payment methodology is the **facility per-diem**. Here, the hospital averages its charges on a daily basis and applies a percentage discount for the payer. The “service,” in this case, becomes an “inpatient day.” For this to work effectively, the payer and the hospital must have a large enough volume for that payer’s average charges to become predictable on a daily basis.<sup>50</sup>

Despite its flaws, fee-for-service has two significant advantages:

- Because payment is related to volume, physicians who care for sicker patients end up being paid for additional effort. Unlike other methodologies, there is no incentive for doctors to “cherry-pick” a healthier panel of patients.
- Fee-for-service claims data is the most granular measurement of resource utilization available. Because payment is directly related to submitted data (the claim), there are fewer issues with data integrity than in systems where encounter data is not tied to payment.<sup>51</sup>

It is important to note that claims data remains the bedrock upon which other payment methodologies are built; bundled or capitated payments, for example, only save the payer money if they are priced lower than the average cost of those procedures paid under fee-for-service.<sup>52</sup>

- **Pay for performance (P4P)** couples the traditional fee-for-service methodology with payment adjustments for meeting (or failing to meet) discrete performance targets based on established, evidence-based clinical benchmarks.<sup>53</sup>
  - While there are thousands of validated quality measures, successful pay for performance contracts focus on a handful of benchmarks, and keep those benchmarks simple.<sup>54</sup>
  - For any payment methodology tied to metrics (including shared-risk methodologies described below), a minimum panel size is required to ensure statistical significance of the results. Some estimates put this as high as 5,000 - 10,000 patients.<sup>55</sup>
  - While pay for performance can add some degree of risk for measured health outcomes, this model does not change the underlying volume problem with fee-for-service.
- **Shared savings (one-sided risk)** methodologies are similar to pay for performance, but they focus on the provider achieving financial targets. If providers participating in this arrangement provide care that reduces the cost of care below what the insurer expected, based on previous experience, they can receive a certain percentage of the savings.

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<sup>50</sup> Kongstvedt. 116.

<sup>51</sup> FFS is still susceptible to fraud and abuse. Upcoding and unbundling claims, for example, can be done in this framework as well as other payment methodologies.

<sup>52</sup> Kongstvedt. “Provider Payment.” *Essentials of Managed Health Care*. 6<sup>th</sup> Ed. 2012. Pg 92.

<sup>53</sup> Valence Health. “Models of Value-Based Reimbursement.” White paper. 2013.

[http://valencehealth.com/uploads/default/Valence\\_Health\\_Models\\_of\\_Value-Based\\_Reimbursement\\_White\\_Paper.pdf](http://valencehealth.com/uploads/default/Valence_Health_Models_of_Value-Based_Reimbursement_White_Paper.pdf)

<sup>54</sup> Kongstvedt. 126.

<sup>55</sup> <http://www.dehealthinnovation.org/Health-Innovation/Committees/Clinical-Committee/Practice-Transformation/Value-Based-Payments>

- Unfortunately, this methodology tends to reward inefficient providers who can more easily improve their financial performance beyond baseline than providers who are already operating efficiently.<sup>56</sup>
- **Shared risk (two-sided risk)** arrangements are similar to shared savings, but include agreed-upon financial penalties for providers who exceed expected medical cost baselines. Risk is therefore “two-sided.”
  - One way of accomplishing a two-sided risk arrangement is through percentage “withholds” on fee-for-service payments that accumulate in a bonus pool. The pool is then distributed to providers at the end of the period based on targets achieved.
  - As with one-sided risk, the incentives for inefficient spending in the baseline period are also unchanged.
- A **case rate** is ultimately still fee-for-service, but broadens the definition of the “service” to cover a time-based “episode of care” rather than a series of specific technical procedures. Unlike bundled payments, case rates are paid to a single provider, and the “episode” is typically defined by the admission and discharge dates for that provider.
  - The most common case rate system today is the system of **Medicare Severity Diagnosis-Related Groups (MS-DRGs)**, the first version of which was implemented with Medicare’s Inpatient Prospective Payment System in 1983.
    - Each MS-DRG represents a “bundle” of hospital services expected to consume a similar amount of medical and surgical resources, and therefore is assigned a weight reflecting this relative use of resources compared with the average case. The hospital is then paid *prospectively* for the admission, based on the weight of that Diagnosis-Related Group, regardless of the actual resources used to treat the individual or the number of days they stayed in the hospital.
- **Bundled payments** are similar to case rates, but include both facility (e.g. hospital), physician and other provider fees in the bundle. The providers involved are then required to divide up the payment amongst each other. The episode is also defined more broadly, in some cases, to include pre-acute and post-acute care.
  - Childbirth is an example candidate of a potential bundled payment. The vast majority of births today are typically paid for through fee-for-service, with a set of facility and physician fees billed to both the mother and newborn. Significantly, additional procedures resulting from higher-cost delivery methods -- e.g. Caesarean section, or complications during the birth -- are all paid for separately. This not only insulates the provider from the risk of complications, but encourages additional inappropriate utilization. Approximately 30% of births today are delivered by C-section, for example, which is double the appropriate rate as estimated by experts. Further, elective (i.e., not medically indicated) early deliveries, which carry greater risks for complications, represent an estimated 10-15% of births.<sup>57</sup>

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<sup>56</sup> Valence Health. 4.

<sup>57</sup> Lally, Sarah. “Transforming maternity care: a bundled payment approach.” Integrated Healthcare Association Issue Brief. Sept. 2013. <http://www.ihc.org/sites/default/files/resources/issue-brief-maternity-bundled-payment-2013.pdf>

- In addition to bundles of procedures, an episode can be bundled across time. The Geisinger Health System in Pennsylvania, for example, introduced a fixed-price acute/post-acute bundle in 2006 that offered a 90-day post-discharge “warranty” for elective heart bypass surgery; that is, if there were any complications after discharge, the hospital would pay for those costs.<sup>58</sup> Geisinger has since expanded this program to include episodes ranging from bariatric surgery to newborn and perinatal care.<sup>59</sup>
- **Risk-adjusted capitation** is the first payment methodology on the continuum that breaks from the volume orientation of fee-for-service. In a capitated (“per head”) model, providers receive a per-member per-month (PMPM) payment for individuals assigned to their practice, regardless of how much care is provided, or whether or not the individual receives care at all. This is similar to paying for a monthly gym membership, only it generally costs a lot more, and is often risk-adjusted based on the expected utilization of the members.
  - Because providers are no longer paid fee-for-service, there is not the same incentive to bill for volume. However, insurers still need to collect fee-for-service-like “encounter data” in order to provide an actuarially-sound foundation for the PMPM rates. As noted in the section of fee-for-service, this data is often of significantly lower-quality than claims data, because no payment is associated with submitting each encounter.
  - Risk-adjustment modifies the PMPM payments based on the expected acuity of the client (i.e., as predicted by their medical history). Without risk-adjustment, providers would have a strong incentive to avoid or ignore high-cost clients, who might need healthcare the most.
  - Because healthcare costs are so variable, however, risk-adjusting is an imperfect science.<sup>60</sup> The lack of information on the part of the insurer can also lead to some perverse incentives for providers:
    - “**Cream skimming**” refers to the practice of actively recruiting a patient panel that providers know to be on the lower-cost end of a given risk-group, while avoiding the higher-cost patients in the same group.<sup>61</sup>
    - “**Upcoding**” refers to providers inflating the number and severity of diagnosis codes in order to ‘game’ the risk-scoring algorithm into assigning the patient into a higher (more lucrative) risk group than the patient actually costs to treat.<sup>62</sup>
- **Global budgets** represent capitation taken to its limits, with a single per-member per-month payment made to a combined hospital/physician organization for all insureds within a designated provider catchment area. Oregon Medicaid and its system of Coordinated Care Organizations (CCO) is one of

<sup>58</sup> [http://www.nytimes.com/2007/05/17/business/17quality.html?\\_r=0](http://www.nytimes.com/2007/05/17/business/17quality.html?_r=0)

<sup>59</sup> <http://www.geisinger.org/sites/provencare/pages/provencare-services.html>

<sup>60</sup> A “good” risk-adjustment model can explain approximately 20-30% of the total variation in healthcare costs.

<sup>61</sup> Van de Ven and Ellis. “Risk adjustment in competitive health plan markets.” *Handbook of Health Economics*, Vol. 1. 2000. 773.

<sup>62</sup> Upcoding has recently been the focus of several investigations in the Medicare Advantage program (<https://www.publicintegrity.org/health/medicare/medicare-advantage-money-grab>). Medicare Advantage scores have consistently increased faster than traditional Medicare beneficiary risk scores ([https://www.cms.gov/mmrr/Downloads/MMRR2014\\_004\\_02\\_a06.pdf](https://www.cms.gov/mmrr/Downloads/MMRR2014_004_02_a06.pdf)), and by some estimates, upcoding has inflated risk scores by 6-16%. Geruso and Layton. “Upcoding: evidence from Medicare on squishy risk adjustment.” National Bureau of Economic Research, Working Paper 21222. May 2015.

the better examples of global budgeting, though it only covers certain medical (not long-term care) services.

- In many ways, this transfers much of the insurance function (and corresponding risk burden) from the insurer to the provider. PMPMs are typically set based on baseline healthcare costs (or actuarial projections based on the population risk profile). For the payer, they are more predictable and (potentially) more controllable than traditional payment arrangements.<sup>63</sup>
- Providers in a global budgeting arrangement have incentives to both find efficiencies in care delivery and attempt to improve the health of their assigned population. Though the PMPM permits additional revenue through enrollment, per-enrollee revenue is essentially flat, and cutting costs becomes the only way to increase profit margin.
- An **integrated health system** (or fully-integrated Health Maintenance Organization) represents the end of the risk spectrum, where the insurer and the provider organization are tightly joined. Kaiser Permanente, particularly its California-based system of clinics, pharmacies, laboratories, and hospitals, is the most famous integrated health system in the United States. An example of a public integrated health system would be the Veterans' Health Administration.
  - In this arrangement (see a more detailed description of HMOs in the next section), clinicians are either exclusively contracted or salaried staff of the insurer/provider. In theory, this aligns incentives to the point where there is no principal-agent problem. In practice, however, organizations are rarely monolithic, and the same information and payment problems might emerge between the providers in the organization and the insurer.<sup>64</sup>
  - As the significant issues faced by the Veterans' Health Administration over the past few years indicate, rationing supply is a coping mechanism to deal with increasing demand in a flat budget environment. Kaiser Permanente has also come under fire for rationing mental healthcare.<sup>65</sup>

### *Supply-side: why would providers accept more risk?*

Why would providers be willing to accept more risk or lower payments? Typically, this is the result of an insurer effectively negotiating its payment methodology by strategically directing or withholding its market share of covered lives. In other words, providers trade lower payments or higher financial risk for guaranteed volume and timely payment.<sup>66</sup>

### *Supply-side: insurance networks, managed care, and market leverage*

This bargain is the fundamental purpose behind **insurance networks**, and why insurers today direct their insureds to specific providers through lower cost-sharing.

Early forms of health insurance (e.g., the simple **indemnity** model) had no networks. Insurers just paid the usual and customary charges billed by any providers who rendered care to the insureds. Providers were also

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<sup>63</sup> Note that, unless the insurer continues to collect FFS-like encounter/claims data from the provider, it will lose information on how underlying medical costs change over time and will not be in a position to question or push-back against proposed increases in PMPM.

<sup>64</sup> Kaiser, for example, has recently experienced nursing staff strikes (<http://abc7.com/news/kaiser-permanente-nurses-begin-7-day-strike/1246364/>) and a threatened strike by mental health practitioners ([http://www.mercurynews.com/health/ci\\_29123006/kaiser-mental-health-workers-avert-strike](http://www.mercurynews.com/health/ci_29123006/kaiser-mental-health-workers-avert-strike))

<sup>65</sup> <http://www.latimes.com/business/la-fi-kaiser-mental-health-20150225-story.html>

<sup>66</sup> Kongstvedt. "The Provider Network." *Essentials of Managed Health Care*. 6<sup>th</sup> Ed. 2012. Pg. 59.

free to “balance bill” insureds for any amounts denied by the insurer. Other indemnity plans simply reimbursed the insured for medical expenses, expecting providers to bill the insured for the full amount.

**Service-benefit plans**, like the Blue Cross Blue Shield organizations, generally kept the indemnity payment model, but first introduced the idea of a contracted network.

- Contracts set maximums on allowed charges. In most cases, service-benefit plans negotiated a contractual percentage discount off billed charges. Additionally, “balance billing” was forbidden; contracts ensured that providers could only bill the insured for their cost-sharing obligations.
- Networks were generally as large as possible.<sup>67</sup>

The introduction of **managed care** refined the concept of a network to specifically begin directing market share towards specific providers, in order to begin implementing the utilization management and different payment methodologies described in the previous section. Managed care insurers did this with varying degrees of flexibility, which is why these new networks have come in an alphabet soup of different flavors. Table 3, below, summarizes the salient features between the network types.

**Table 3: Insurance network structures**

Network	Pays for non-emergent out-of-network care	Typical utilization controls	Cost-sharing
Health Maintenance Organization (HMO)	No	Primary care provider (PCP) referrals	Lowest
Point-of-Service (POS) plan	Yes, with referral		Low for in-network
Exclusive Provider Organization (EPO)	No	Prior authorization	Low
Preferred Provider Organization (PPO)	Yes		Medium for in-network, higher for out-of-network

It is worth noting here the history and characteristics of HMOs as an example of the benefits and problems with managed care generally. While the first “proto-HMO” emerged as early as 1910, the idea only took off in the early 1970s, as concerns over overutilization in the fee-for-service system grew.<sup>68</sup> HMOs were unique in that they combined several elements:

- Narrow networks. HMO members must see providers within a relatively tight group of providers.
- Capitated payments, or some measure of financial risk sharing directly with physicians -- as well as gatekeeping and utilization management. Typically, capitation is only used in primary care settings, and is combined with gatekeeping to ensure that PCPs have control over utilization. In many cases, however, the volume incentives behind FFS are not entirely avoided, since physician groups receiving the capitation often pay their physicians on a FFS basis.<sup>69</sup>
- An emphasis on preventive health services.

<sup>67</sup> Wagner and Kongstvedt. “Types of health insurers, managed health care organizations and integrated care delivery systems.” *Essentials of Managed Health Care*. Pg. 33.

<sup>68</sup> In 1910, the Western Clinic in Tacoma Washington was a pre-paid group practice that provided essentially direct primary care to members for a monthly premium of \$0.50 per month. Before 1970, however, there were fewer than 30 HMOs in the United States, and most health insurance was administered through the service-benefit model of the Blues. Fox and Kongstvedt. “A history of managed health care and health insurance in the United States.” *Essentials of Managed Health Care*. 6<sup>th</sup> Ed. 2012. pg 4.

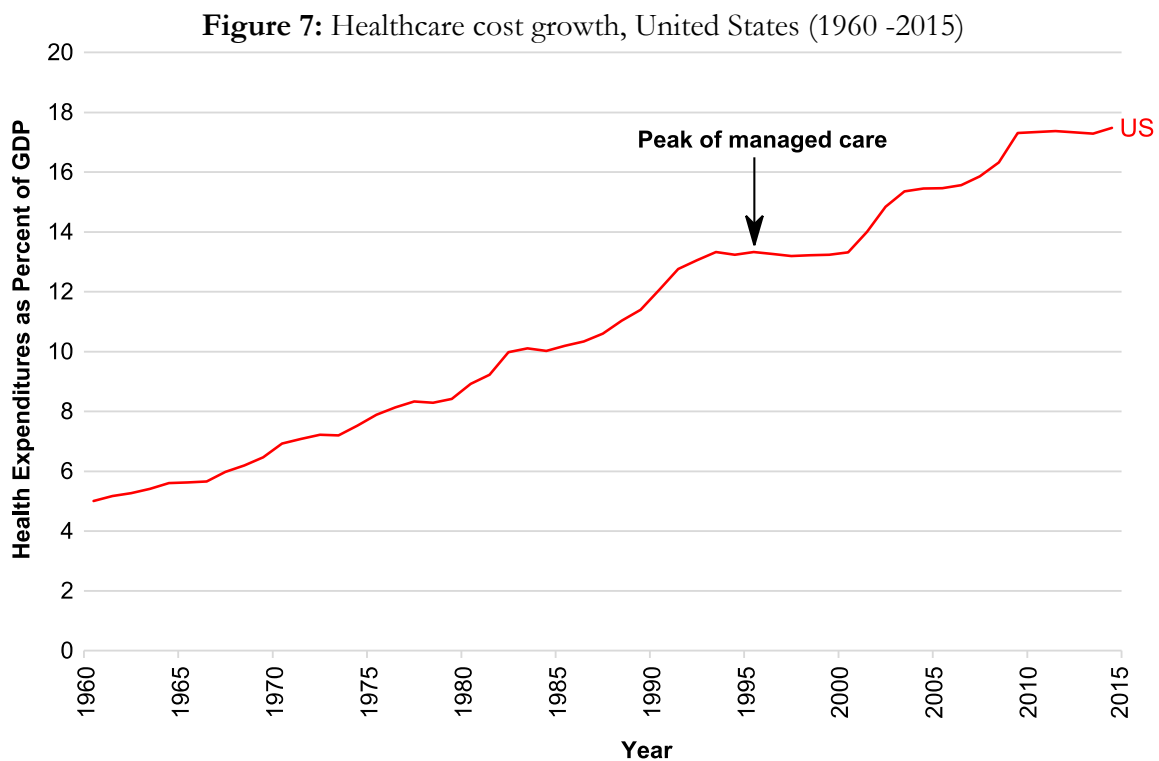
<sup>69</sup> Wagner and Kongstvedt. 32.

In 1973, the HMO Act allowed these organizations access to the employer-sponsored health insurance market, and the model began to expand. In 1984, HMOs and PPOs had 15.1 million enrollees; by 1999 enrollment exceeded 104 million and traditional indemnity insurance had been rendered obsolete.<sup>70</sup> Table 4, below, shows the estimated percent of employer-sponsored insurance plans by model. Recently, Consumer-Directed Health Plans (CDHPs, described in the cost-sharing section) have begun displacing PPOs.

**Table 4:** Health plan enrollment for employer-sponsored health insurance, by type, 1988 - 2012  
(data: Kaiser Family Foundation synthesis of various survey data)<sup>71</sup>

	Year																
	88	93	96	99	00	01	02	03	04	05	06	07	08	09	10	11	12
<b>Traditional</b>	73%	46%	27%	10%	8%	7%	4%	5%	5%	3%	3%	3%	2%	1%	1%	1%	1%
<b>HMO</b>	16%	21%	31%	28%	29%	24%	27%	24%	25%	21%	20%	21%	20%	20%	19%	17%	16%
<b>PPO</b>	11%	26%	28%	39%	42%	46%	52%	54%	55%	61%	60%	57%	58%	60%	58%	55%	56%
<b>POS</b>	0%	7%	14%	24%	21%	23%	18%	17%	15%	15%	13%	13%	12%	10%	8%	10%	9%
<b>CDHP</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	5%	8%	8%	13%	17%	19%

Managed care is often credited with “wringing out” much of the excess utilization in the US healthcare system.<sup>72</sup> Note the plateau in healthcare costs between 1990 and 2000 on Figure 7, below, corresponding with the peak of managed care illustrated in Table 4 (highest enrollment in HMO plans).



The “managed care backlash” arrived in the late 1990s and early 2000s. Media stories and public outcry over HMOs were followed by “patient protection” and “any willing provider” legislation, and the effect of managed

<sup>70</sup> Fox and Kongstvedt. 10.

<sup>71</sup> <https://kaiserfamilyfoundation.files.wordpress.com/2013/03/ehbs-distribution-of-health-plan-enrollment-for-covered-workers-by-plan-type-1988-2012-healthcosts.png>

<sup>72</sup> Pinkovskiy, Maxim. “The impact of the managed care backlash on health care costs: evidence from state regulation of managed care cost containment practices.” Federal Reserve Bank of New York. Oct 17, 2013. (<http://economics.mit.edu/files/8448>)

care on healthcare costs began to wane. The reasons for the backlash largely centered on HMO cost-control measures that restricted patient choice:

- When employers switched to HMOs, they frequently dropped the option of sticking with the traditional indemnity or service-benefit plan.
- Many people chafed at having to go through their primary care provider for referrals, or were frustrated by their limited choices in providers.
- Increasing utilization review and claims denials led to the perception that care was being micromanaged and withheld by bean-counters in order to enrich plan executives.

As proponents of managed care note:

*As a society, we expected managed care to reduce the escalation of health care costs but became enraged at how it did it. In retrospect, why that happened is obvious because managed care was the only part of the health care sector that ever said “no.”<sup>73</sup>*

The result of the backlash was a loosening of managed care restrictions, and the replacement of HMOs with less-restrictive Preferred Provider Organizations (PPOs). This, in turn, was associated with increasing healthcare expenditures as a percent of GDP.

#### *Supply-side: geography and insurance networks*

Despite this shift toward less-restrictive networks, the importance of the insurer’s network in negotiating contractual discounts remains paramount.

Because most people prefer to visit doctors and hospitals that are close to where they live, insurers are fundamentally tied to geography when building their networks.<sup>74</sup> Most insureds in Wyoming, for example, would not value an insurance plan with extensive provider networks in Florida over one with a provider network in Wyoming and surrounding states.

Note, however, that a good network of certain tertiary national hospitals and physicians (e.g. centers of excellence like the Mayo Clinic or M.D. Anderson) is required to negotiate discounts on often-costly specialty and sub-specialty care for insureds who seek “only the best” medical care and are willing to travel for these services. Nationwide contracting to secure discounts from these tertiary providers therefore has value as well.

These **service areas** must often be contiguous. States often impose minimum access requirements in each service area, typically calculated based on the drive-time for members. In rural areas like Wyoming, for example, minimum access for a network might be defined as:

- Two primary care providers and one basic services hospital within 30 miles and
- Specialists within 100 miles.<sup>75</sup>

Because insurers need significant market share in these service areas in order to negotiate competitive prices and payment structures with the providers in that network, they need to focus on selling their product in the service area as well. The need to develop a provider network while recruiting insureds in the same area

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<sup>73</sup> Fox and Kongstvedt. 12.

<sup>74</sup> Kongstvedt. 58.

<sup>75</sup> Kongstvedt. 59.

therefore forms a self-reinforcing cycle that deepens the importance of geography. Ultimately, this means that what might seem like an intangible financial product that could be sold anywhere becomes something very local.<sup>76</sup>

It also means that, in rural areas like Wyoming, there is often less competition between providers than there would be in larger metropolitan areas. Less competition among providers means that providers who do practice here have natural market advantages over any insurers. For example, most communities in the State are served largely by one hospital. To meet network adequacy requirements, insurers must include this hospital in their networks, and are therefore at a disadvantage when negotiating payment or risk-sharing arrangements for lack of realistic alternative.<sup>77</sup>

### *Administrative costs*

In addition to attempting to control the underlying costs of healthcare, insurers also seek to minimize their own administrative costs. Some of these costs are unavoidable -- taxes and fees, for example, imposed at both State and Federal levels. However, overhead and profit margins are more discretionary.

Administrative costs in health insurance are measured by what is known as the **Medical Loss Ratio**, or **MLR**. Traditionally, this calculation has simply been the ratio of total paid claims to premiums collected.<sup>78</sup> Figure 8, on the next page, illustrates the MLR by summarizing how money flows through the system.

There are two important simplifications on the diagram that differ from reality: the simplest definitions of actuarial value and medical loss ratio are illustrated, and cost-sharing was assumed to be proportional across provider types.

Note that:

- The average actuarial value was close to “Gold” level (80%) in the 2014 small group and individual markets, meaning that average out-of-pocket expenditures were just over 20% of total allowed<sup>79</sup> medical costs.
- The average medical loss ratio was 88%, meaning that approximately 12% of premiums collected went towards overhead, profit, and regulatory costs. For insureds in these two markets, the remainder of healthcare costs largely go to hospitals (45%), physicians (28%) and prescription drugs (17%).

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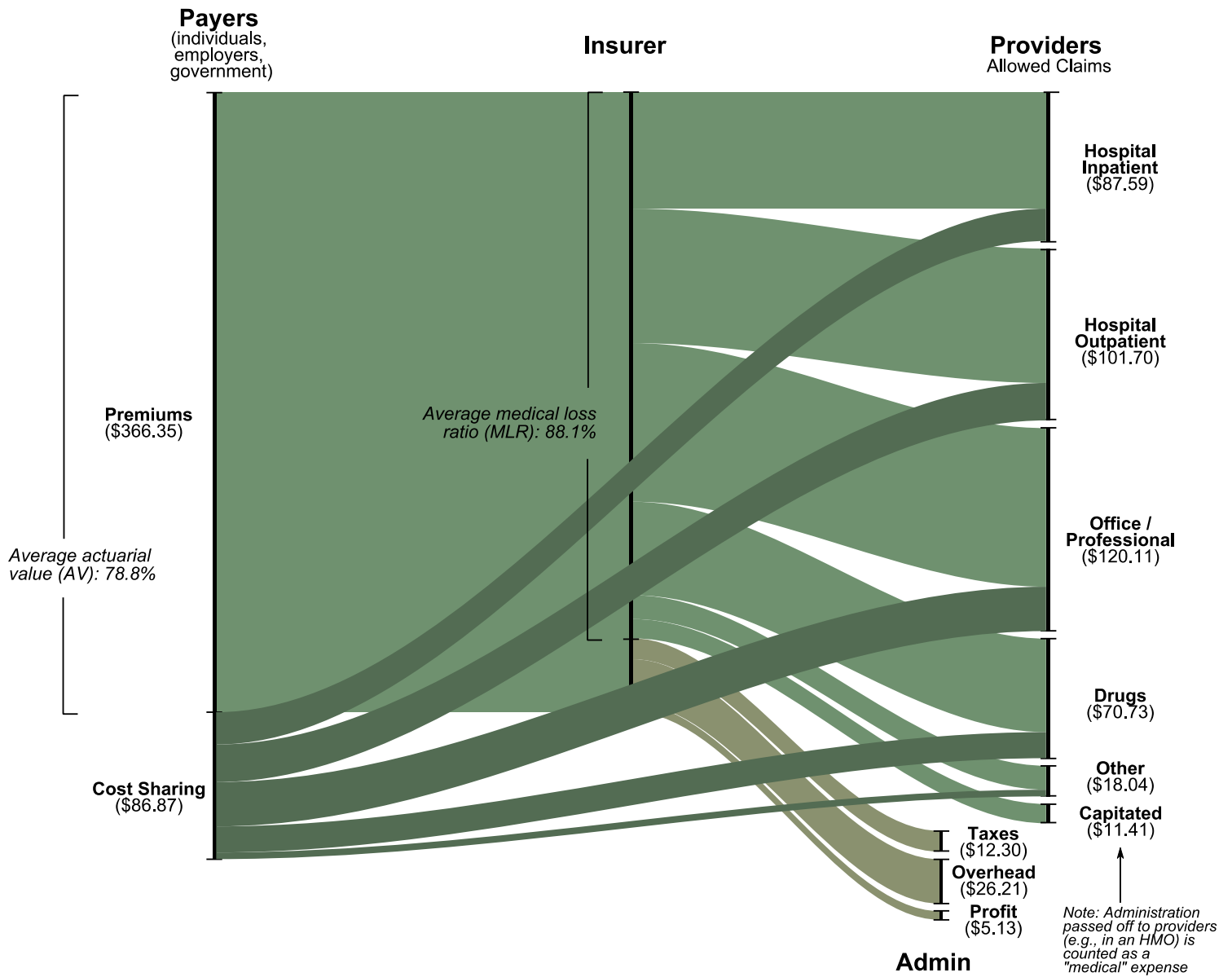
<sup>76</sup> The Commonwealth Fund has studied Medicare Advantage networks -- all of which are regulated in the same way by the Federal government -- and found significant concentration on the local level, indicating that this fundamental market dynamic holds. <http://www.commonwealthfund.org/publications/issue-briefs/2015/aug/competition-medicare-private-plans-does-it-exist>

<sup>77</sup> Best alternative to negotiated agreement, or “BATNA”

<sup>78</sup> The ACA has modified this formula slightly to incorporate factors like quality improvement expenses and regulatory costs, as well as allowing “credibility adjustments” for smaller plans, but the concept is similar. <http://kff.org/health-reform/fact-sheet/explaining-health-care-reform-medical-loss-ratio-mlr/>

<sup>79</sup> “Allowed” claims are based on contractually-negotiated rates between the provider and the insurer, not billed charges. In Wyoming, insurers typically negotiate a percentage off billed charges.

**Figure 8:** Average health insurance payment flows in the small group and individual markets (national averages, derived from CCIIO rate review filings, 2014)



### Purpose No. 3: to improve health?

An earlier section noted that health insurance does not actually insure health -- it only insures against the potentially catastrophic costs of healthcare. This section reinforces the idea that, while the insurer (and its pool of insureds) pays the costs of members' poor health, there are limited ways for the health insurer to actually improve poor health.

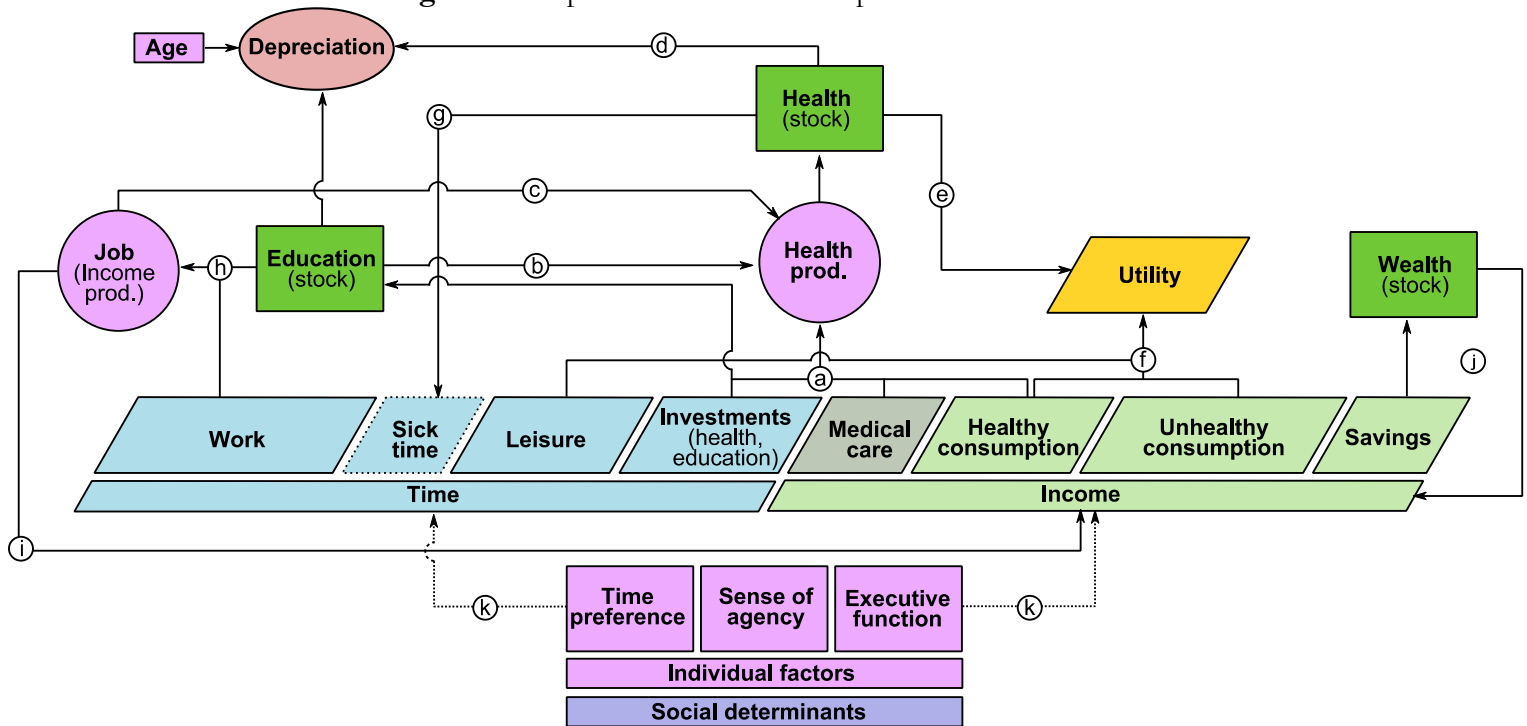
#### *Healthcare contributes only a small amount towards an individual's health*

Presumably, the purpose of health insurance is to ensure access to medical services that improve individual's health. Treating disease once it has occurred, however, is only a small part of creating and maintaining health; estimates are that only 10-20% of health outcomes are attributable to healthcare.<sup>80</sup> The remaining 80-90% of an individual's health is determined by multiple factors, including genetics, the environment, individual behaviors, and the social determinants of health, such as income, education, and neighborhood factors. One of the starkest correlations in the literature is that between socio-economic status (SES) and health. Income, wealth, education, and health status are all strongly correlated with each other. This is true regardless of the measure of socio-economic status used and regardless of the size of a country's social welfare system.<sup>81</sup>

#### *The human capital model of health*

Much of what we can observe in the relationships between socio-economic status and health can be explained through an economic model first constructed by Michael Grossman<sup>82</sup> and extended by other health economists since 1972. The model is illustrated in Figure 9, below, and explained on the next page.

**Figure 9:** Simplified view - human capital model of health



<sup>80</sup> "Health Policy Brief: The Relative Contribution of Multiple Determinants to Health Outcomes." *Health Affairs*U. 21 August 2014. ([http://healthaffairs.org/healthpolicybriefs/brief\\_pdfs/healthpolicybrief\\_123.pdf](http://healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_123.pdf))

<sup>81</sup> Galama and Kippersluis. Health inequalities through the lens of health capital theory: issues, solutions and future directions." *Res Econ Inequal.* June 2013. Pages 1-4

<sup>82</sup> Grossman, Michael. "On the concept of health capital and the demand for health." *The Journal of Political Economy.* Vol 80, No. 2. 1972. [http://economics.sas.upenn.edu/~hfang/teaching/socialinsurance/readings/Grossman72\(3.1\).pdf](http://economics.sas.upenn.edu/~hfang/teaching/socialinsurance/readings/Grossman72(3.1).pdf)

In the human capital model of health, health status is a unique good in that it represents a stock that individuals both produce (by combining consumption and their own time inputs) and consume.

### Health production

- A person's rate of health production (letter "a" in Figure 9, on the previous page) is a function of medical care, unhealthy consumption (e.g., cigarettes), healthy consumption (e.g., vegetables), and investments in time (e.g., exercise, brushing one's teeth). The model, as extended by Galama and van Kippersluis, assumes decreasing returns to scale for these investments.<sup>83</sup>
  - Lifestyle factors such as smoking, drinking, diet and exercise have obvious causal pathways towards health (i.e., smoking causes lung cancer). These factors are also correlated with income; higher-income people are less likely to smoke, drink or be obese.<sup>84</sup>
  - A direct causal link between income and health, however, is unclear. Increasing income can finance higher amounts of medical care and healthy consumption, but higher-income people also face a higher opportunity cost (forgone wages) of investing time in healthy activities.<sup>85</sup>
- Education (another stock of human capital) has a demonstrated causal effects on health, but the exact mechanism is unclear. The model in Figure 9 assumes that education increases the efficiency of health production ("b") -- more educated people are better able to manage disease, and tend to benefit more from advances in health-related science and technology.<sup>86</sup>
  - Smoking, for example, is inversely associated with higher income today, but evidence suggests the opposite was true prior to the 1964 Surgeon General's report on smoking's harmful effects; high socio-economic status populations were both the earliest adopters of the cigarette 'innovation', and the first group to respond to new information about its harmful effects.<sup>87</sup>
- A person's job can affect health production ("c") independently from the person's other characteristics.<sup>88</sup> This happens in two ways:
  - Physical health hazards, which are generally more prevalent in lower-paid occupations; and,
  - Psychosocial effects (e.g. sense of agency, purpose, and fulfillment that comes from meaningful, independent and high-status work).
- Despite investment, the stock of health depreciates over time. The rate of depreciation increases with age ("d").<sup>89</sup>

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<sup>83</sup> Galama and Kippersluis (2013). Page 7.

<sup>84</sup> Galama and Kippersluis (2013). Page 3.

<sup>85</sup> Galama and Kippersluis. "A theory of socioeconomic disparities in health over the life cycle." RAND Working Paper. July, 2010. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=16599055](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=16599055). Page 7.

<sup>86</sup> Galama and Kippersluis (2010). Page 4.

<sup>87</sup> Pampel, F.C. "Diffusion, cohort change, and social patterns of smoking." *Social Science Research*. 2005. (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3319442/>)

<sup>88</sup> Galama and Kippersluis (2010). 5.

<sup>89</sup> "The human capital model of the demand for health." Grossman. NBER Working Paper 7078. April 1999. 13.

## Health consumption

- Direct effects. Healthy people generally feel better than sick people. The stock of health is therefore enjoyed in and of itself, producing utility (“e”), as does the consumption of other goods and leisure time (“f”).
- Indirect effects. The stock of health also affects the amount of time an individual is sick (“g”), which takes away from both leisure and work time. When combined with education (“h”) in the form of a better-paying job, work time influences the amount of income a person can make, which affects consumption (“i”). The stock of health thus indirectly affects a person’s utility.<sup>90</sup> By affecting income, health can affect the stock of wealth as well (“j”).

## Underlying factors

Beyond these observed correlations are underlying individual factors theorized by healthcare economists and population health experts to actually cause poor health. These include:

- An individual’s **time preference**<sup>91</sup>; that is, how much they value present consumption over future consumption. Individuals who heavily discount the future in favor of short-term gratification, for example, are likely to make decisions (like smoking, not exercising, not studying, and taking out payday loans) that negatively impact future health, education, and income. Conversely, people who value the future more highly are likely to make “better” decisions and end up healthier, wealthier, and wiser.
- **Executive function**, which represents the set of skills that allow people to focus, remember instructions, prioritize tasks, and demonstrate self-control.<sup>92</sup> In conjunction with time-preference, these self-regulating skills help individuals make long-term investments in their human capital. The famous “marshmallow” study of the 1960s and 70s,<sup>93</sup> for example, demonstrated strong correlations between self-control and future health, education, and social outcomes.
- **Agency**, also known as self-efficacy or “patient activation” when it relates to healthcare, is the sense of control that people have over their own health. Being engaged and active in their own care is intuitively and empirically correlated with better health outcomes and measureable cost savings.<sup>94</sup>

A second layer down are the physical and social factors that influence these underlying individual characteristics, particularly during childhood. These range from stress through adverse childhood experiences<sup>95</sup> to physical air<sup>96</sup> and water<sup>97</sup> pollution.

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<sup>90</sup> Grossman (1972). 225.

<sup>91</sup> Fuchs, Victor. “Time preference and health: an exploratory study.” NBER Working Paper 539. August, 1980. (<http://www.nber.org/papers/w0539.pdf>)

<sup>92</sup> <http://developingchild.harvard.edu/science/key-concepts/executive-function/>

<sup>93</sup> In a series of studies conducted at Stanford, preschool children were left alone in a room with a marshmallow, with the instructions that, if they didn’t eat the marshmallow and instead waited for the researcher to return (15 minutes later), they could enjoy two marshmallows. In follow-up studies, children who demonstrated self-control were found to have higher SAT scores, lower weight and better social outcomes. (<http://www.newyorker.com/magazine/2009/05/18/dont-2>)

<sup>94</sup> Hibbard et al. “Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers.” Health Serv Res. Aug, 2004. (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1361049/>)

<sup>95</sup> <http://developingchild.harvard.edu/science/key-concepts/toxic-stress/> and <http://pediatrics.aappublications.org/content/129/1/e232>

<sup>96</sup> E.g. PM 2.5 particulates (<http://circ.ahajournals.org/content/121/21/2331.abstract>)

<sup>97</sup> E.g., exposure to lead in children.

### *Population health and social determinants*

The inability of the healthcare system to actually impact these multiple determinants of health is a primary objection made by healthcare providers to the increasing use of many quality measures, such as hospital readmission rates, that may also be affected by the patient's socioeconomic characteristics.<sup>98</sup>

However, the healthcare system is increasingly learning to address the multiple determinants of health through care management, wraparound services, community health assessments, additional training for clinicians, and forming collaborations with other organizations. HealthPartners, based in Minnesota, is an example of an integrated provider and health insurance company that is highly engaged in community-based health promotion.<sup>99</sup> An example of a specific clinical practice is screening for domestic abuse and food insecurity during a primary care visit, with a social worker available at the clinic to work with the patient if any flags are raised.

However, given that the majority of overall health is attributable to determinants outside of the healthcare system, it has been argued that a Health in All Policies (HiAP) approach, in which all public sectors -- transportation, education, etc. -- consider the health impacts of their policy decisions as part of decision-making, is required to comprehensively address population health.<sup>100</sup>

### *The role of the insurer in population health*

How do insurers fit into this framework? What can they do to directly influence the health of their insureds? Three potential avenues include **wellness programs, disease management programs** and **Super Utilizer Programs**.

### *Influencing health - wellness programs*

Wellness programs are designed to provide incentives for all employees to take responsibility for and improve their own health, with the goal of lowering overall healthcare costs. In the human capital model described above, the program acts on the primary drivers behind individual health production:

- Increasing healthy consumption (e.g., vegetables, gym memberships)
- Increasing time investments of health production (e.g., actually using the gym membership), and
- Decreasing unhealthy consumption (e.g., cigarettes).

Though over half of employers offer them today, the design of wellness programs varies significantly and, in a comprehensive review of over 600 programs by RAND, actual results have been mixed.<sup>101</sup>

- Participation is generally low, with less than half of employees typically even completing a Health Risk Assessment (HRA) screening, and less than one fifth participating in more demanding interventions.
- There is little evidence of actual cost savings through improved health.<sup>102</sup>

Potential reasons behind the disappointing effectiveness of current wellness programs could be:

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<sup>98</sup> [http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief\\_id=102](http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief_id=102)

<sup>99</sup> <https://www.healthpartners.com/hp/about/community-engagement/index.html>

<sup>100</sup> <http://www.astho.org/Programs/HiAP/>

<sup>101</sup> Mattke et al. "Workplace Wellness Programs Study." RAND. RR-254-DOL. 2013.

[http://www.rand.org/content/dam/rand/pubs/research\\_reports/RR200/RR254/RAND\\_RR254.pdf](http://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR254/RAND_RR254.pdf)

<sup>102</sup> <http://www.bloomberg.com/view/articles/2013-09-16/the-feel-good-promise-of-wellness-programs>

- Incentives may be too small. A recent study found that even a \$550 annual incentive had no effect on workplace weight loss.<sup>103</sup>
  - Employers have the latitude to increase wellness incentives dramatically; the Equal Opportunity Employment Commission recently ruled that, provided wellness programs follow certain guidelines, up to 30% of the total premium value could be used as an incentive or penalty.<sup>104</sup> A plan with an average \$400 per month premium could have annual incentives as high as \$1,440.
- Incentives may be too long-term, failing to provide the short-term feedback required to motivate people who are already trapped in unhealthy habits.<sup>105</sup>

In addition to increasing the amount of and shortening the time between incentives, employers could theoretically take advantage of phenomena in behavioral economics that increase the effective value of the incentive.

As an example, consider an insurance plan with 30,000 members and annual average total premiums of \$400 per month. Assume further a wellness program funded through a 10% premium surcharge on each member (\$40 average per month) that generates \$1.2 million per month for the program. This is below the maximum 30% rule set by the EEOC.

Consider further three different ways to structure the wellness incentives:

- The plan could **directly subsidize** healthy consumption with the wellness funding. By using its market share strategically, the plan could negotiate significant discounts with designated non-medical providers (e.g., corporate gym memberships, or percentage discounts off vegetables at a designated grocery chain) and thereby generate more value for its members than they pay (in this case, \$40 per month).
- In a **loss aversion** design, the 10% wellness charge would accumulate in a virtual account for each employee over a given time period (e.g. \$40 in a month / \$120 in a quarter / \$480 in a year). At the end of the period, if members accomplished or showed progress in accomplishing various health-related targets (e.g. blood pressure / heart rate within a healthy range), they would be refunded the account in cash. This takes advantage of the phenomenon of “loss aversion,” where people are more averse to losing something they already have than they would be to gaining the same amount.
- A **lottery design** would be similar, but instead of refunding individual amounts, the employees who accomplished (or showed progress in reaching) the same health-related metrics would be eligible for a random drawing for \$1.2 million each month. This takes advantage of the fact that it is difficult for people to accurately value probabilities. In this case, an expected value of \$40 takes on more psychological resonance. Administratively, this would be simpler to administer; eligibility would be based on self-reporting, with only the health outcomes of the winner (one per month) requiring verification.

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<sup>103</sup> Patel et al. “Premium-based financial incentives did not promote workplace weight loss in a 2013-15 study.” HealthAffairs. January 2016.

<sup>104</sup> <https://www.eeoc.gov/laws/regulations/qanda-gina-wellness.cfm>

<sup>105</sup> Psychologists Sendhil Mullanathan and Eldar Shafir have hypothesized that poverty reduces “mental bandwidth” and ability to concentrate on longer-term goals (“tunneling”), perpetuating the same short-sighted behaviors that made people poor to begin with (<http://opinionator.blogs.nytimes.com/2013/09/25/escaping-the-cycle-of-scarcity/>)

### *Influencing health - disease management*

These programs focus case management services on individuals with a defined chronic condition, most commonly: asthma, diabetes, congestive heart failure, depression, and chronic obstructive pulmonary disease. The goal of disease management is to increase patient activation (i.e., sense of agency, described in the model above) and the patient's ability to self-manage the condition in question.

As with wellness, most employers and insurers also have disease management programs.<sup>106</sup> Typically, this is outsourced to a specialized disease management vendor, who use the following tools to deliver case management services:<sup>107</sup>

- To identify members who might benefit from case management, the vendor typically relies on algorithms applied to claims data (see Part III). Some of these are very simple -- looking only at diagnosis-related information to select a potential panel. Others are more sophisticated, using predictive risk scoring techniques, or looking for "gaps in care" (i.e., unfilled prescriptions, missed visits) to identify members who are "impactable."
- Once members are identified, vendors employ a call center for telephonic case management. This means calling the member to develop and track a self-care plan for disease management, and calling physicians to coordinate care (i.e., a member's recent ED visits or tests due). In some cases, vendors may install home-monitoring equipment to track indicators (i.e., weight or blood pressure) more closely.

Despite the increasing saturation of the market (from \$78 million in 1997 to \$1.2 billion in 2005 to \$2.8 billion in 2010), evidence for effectiveness is inconclusive.

A RAND meta-analysis of 29 studies in 2007 found that, while disease management appears to improve the quality of care (measured by both adherence to evidence-based guidelines and intermediate proxy measures), there was insufficient to no evidence of ultimate clinical or cost effectiveness. The study concluded:

*Until a stronger base of evidence has been developed, public and private purchasers of disease management services should be skeptical about vendor claims and should demand supporting evidence based on transparent and scientifically sound methods.*<sup>108</sup>

A McKinsey study<sup>109</sup> notes that more recent studies of disease management programs in Germany, Japan and the Netherlands show more promise. The authors identify common characteristics among more successful disease management programs -- they tend to be larger in size, simpler to administer, and with clear alignment of incentives between payers, patients and providers.

### *Influencing health - Super Utilizer Program (SUP)*

Where wellness programs are targeted towards all members, and disease management programs focused on a subset of members, a Super Utilizer Program is tightly focused on a relative handful of a plan's highest-cost members -- the "super utilizers." Not all high-cost members are "super-utilizers"; otherwise healthy people

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<sup>106</sup> Mattke et al. "Evidence for the effect of disease management: is \$1 billion a year a good investment?" American Journal of Managed Care. Dec. 2007. (<http://allhealth.org/BriefingMaterials/AJMC-Mattke-1131.pdf>)

<sup>107</sup> Plocher, David. "Fundamentals and core competencies of disease management." Essentials of Managed Health Care. 6<sup>th</sup> Ed. 2012. Pg. 220.

<sup>108</sup> Mattke. 675 and 676.

<sup>109</sup> Brandt, et. al. "How to design a successful disease-management program." McKinsey and Company. Oct. 2010. <http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-to-design-a-successful-disease-management-program>

can incur colossal medical expenses if they get in a car accident or are hit by a bus, for example. “Super utilizers,” on the other hand, tend to have a complex set of interacting chronic physical and mental health conditions, often exacerbated by poor behavioral choices and an inability to manage their own health. Much of the care they utilize is inappropriate or potentially avoidable.

In his article profiling one of the pioneering Super Utilizer Programs (created by Dr. Jeffrey Brenner in Camden, New Jersey), Dr. Atul Gawande illustrates one case:

*The first person they found for him was a man in his mid-forties whom I’ll call Frank Hendricks. Hendricks had severe congestive heart failure, chronic asthma, uncontrolled diabetes, hypothyroidism, gout, and a history of smoking and alcohol abuse. He weighed five hundred and sixty pounds. In the previous three years, he had spent as much time in hospitals as out. When Brenner met him, he was in intensive care with a tracheotomy and a feeding tube, having developed septic shock from a gallbladder infection.<sup>110</sup>*

The theory underlying a Super Utilizer Program is that intensive case management, applied early on, can improve health and thereby prevent some amount of high-cost utilization down the road. The key is sustained, in-person contact that has the short-term goal of coordinating care and the long-term goal of teaching self-sufficiency and disease-management abilities.

An effective SUP therefore has three objectives:

- Accurately identify high-cost members who are “super utilizers,” ideally before they become high-cost. This requires fitting predictive models to claims data and identifying members based on a prospective risk score.
- Develop an effective in-person case management program that accomplishes the goals mentioned above.
- Ensure that savings from the program exceed the costs of the program.

Wyoming Medicaid recently (7/1/16) launched its own Super Utilizer Program for 500 high-risk Medicaid members. Cost and health outcome measures for these members will be compared against a similarly-sized control group in a randomized controlled trial design to evaluate potential savings, with preliminary results expected in early 2017.

## **Conclusion: unique problems, many tools, no panacea**

As illustrated in the preceding sections, health insurance poses unique challenges to insurers. While a variety of tools are available to control costs on both the demand and supply side, none have proven to be a cure-all.

- As the managed care backlash demonstrated, some of the most effective tools have encountered political hurdles or have been explicitly rejected by society. Today, consumer-directed health plans, coupled with reference pricing and bundled payment methodologies may be the most promising way of controlling price and utilization while still providing some measure of choice.
- Other tools -- wellness programs, disease management and Super Utilizer Programs -- lack clear evidence of effectiveness. It’s been said that “insulation might save you money on your heating bill, but it won’t save you money on insulation.” While these tools might seem attractive to implement, careful study is critical to ensure that the cost of the “insulation” doesn’t exceed the savings on “heat.”

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<sup>110</sup> Gawande, Atul. “The Hot Spotters.” *The New Yorker*. Jan 24, 2011.  
(<http://www.newyorker.com/magazine/2011/01/24/the-hot-spotters>)

# PART II: WYOMING HEALTH INSURANCE MARKETS

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This section describes the current health insurance market in Wyoming. Per the footnote, it includes estimates of coverage by plan type and provider. In addition, available data on health insurance costs are included. Two major conclusions from this section are:

- Compared with all other states, Wyoming has the highest percent of its population in self-insured employer-sponsored plans.
- Available data indicate that Wyoming's private sector health insurance costs are among the highest in the country.

## Types of health insurance coverage

Insurance coverage in the U.S. can be divided into two broad categories, public and private, depending on the payer. Within these two broad categories are multiple programs and types of insurance, described below.

### *Public insurance*

- **Medicare** is a Federal insurance program that pays most medical costs for individuals age 65 and older and certain disabled individuals under age 65. Medicare is a collection of four different benefit plans:
  - **Part A** pays for approximately 80% of hospital and *short-term* nursing home and home-health services. Medicare generally does not pay for long-term care. Because of the high cost-sharing requirements of Part A and absence of an out-of-pocket maximum, many beneficiaries also purchase private “Medigap” policies.
  - **Part B**, which is optional, covers medically-necessary office and outpatient services.
  - **Part C**, also known as “Medicare Advantage”, is an option for enrollees to replace “traditional Medicare” (Parts A and B) with enrollment in a privately-operated managed care plan.
  - **Part D**, available since 2006, covers prescription drugs.
- **Medicaid** is a State-Federal entitlement program that covers certain categories of low-income individuals. Medicaid pays for a wide range of medical services, long-term care in institutions and home/community based services. It also covers some cost sharing for low-income Medicare beneficiaries. **Dual-eligibles** are those that qualify for both Medicare and Medicaid.
- The **State Children's Health Insurance Program**, or **CHIP**, is another State-Federal insurance plan for children who are low-income, but not low-income enough to qualify for Medicaid. CHIP is not an entitlement program, and therefore requires periodic re-authorization by Congress.
- **TRICARE**, or the **Military Health System (MHS)** covers eligible military personnel; largely active-duty and their dependents, but also retirees and reservists. Care is either provided directly in military-operated facilities, or paid for by designated contracted insurers (for instance, TRICARE West is administered by United Healthcare).
- The **Veterans Health Administration (VA)**, distinct from the Military Health System, provides medical and long-term care to those veterans with service-connected disabilities and health conditions (prioritized), or those who are low-income.

- The **Indian Health Service (IHS)** is a Federal healthcare program administered through the Department of Health and Human Services as part of the unique trust responsibility between the government and sovereign tribes. IHS provides some medical assistance to eligible American Indians at IHS facilities; this coverage is not considered comprehensive, however, so the U.S. Census does not recognize IHS coverage as health insurance.
- **Institutionalized** individuals are usually in correctional facilities, and would receive their healthcare through the prison, per the 8<sup>th</sup> Amendment.<sup>111</sup>

### *Private insurance*

- **Employer Sponsored Insurance (ESI)** is self-explanatory. This category has been the dominant form of health insurance in the United States since the 1940s, largely due to its tax-advantaged status.<sup>112</sup> When it comes to providing health benefits, employers have two options:
  - They can **self-insure**, meaning that the employer pays directly for all care.
    - Employers usually hire a **third-party administrator (TPA)** to process medical claims and obtain **stop-loss insurance** to protect against catastrophic claims.
    - Due to another artifact of history<sup>113</sup>, self-insured employer plans are regulated by four major federal statutes, which pre-empt state health insurance law.<sup>114</sup>
  - They can purchase a **fully-insured** product, meaning that they pay monthly premiums to a health insurance company on behalf of their employees, and the insurance company assumes full risk and responsibilities for paying and administering claims. For ESI, Table 1 breaks out the fully-insured market into the **large group** and **small group** markets.
    - In addition to ERISA and other federal statutes, fully-insured products are also subject to state insurance laws.
    - Fully-insured products usually have higher administrative costs (i.e., due to state taxes, increased overhead due to the need to market plans, and a profit margin for the insurer), but may also be able to negotiate better prices for medical care than a company could on its own.<sup>115</sup>
- **Directly-purchased insurance** represents those products purchased by individuals directly from an insurance carrier on the **individual market**. In 2010, this market was transformed through the ACA, as all products were standardized by benefits and actuarial value (AV) and made available for purchase on an online portal (the State- and Federally-facilitated marketplaces, or exchanges.)

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<sup>111</sup> Estelle v. Gamble (1976) and Helling v. McKinney (1993)

<sup>112</sup> The first tax exemption was enacted by the National War Labor Board during WWII as a concession towards labor interests when wages were frozen. Cutler and Zeckhauser, 569 and <https://www.ebri.org/publications/facts/index.cfm?fa=0302fact>

<sup>113</sup> Concern over unfunded pension obligations grew in the 1960s and 70s, culminating in ERISA. Only Hawaii's Prepaid Healthcare Act, which was enacted a few months before ERISA, allows that state to regulate private employer health plans.

<sup>114</sup> These include the Employee Retirement Income Security Act of 1974 (ERISA), the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA), the Health Insurance Portability and Accountability Act of 1996 (HIPAA); and the Patient Protection and Affordable Care Act of 2010 (PPACA), though self-insured plans are not subject to most new ACA requirements imposed on fully-insured products. (Eiber, et al. "Employer self-insurance decisions and the implications of the Patient Protection and Affordable Care Act as modified by the Healthcare and Education Reconciliation Act of 2010." RAND. 2011. Page 20. [http://www.rand.org/content/dam/rand/pubs/technical\\_reports/2011/RAND\\_TR971.pdf](http://www.rand.org/content/dam/rand/pubs/technical_reports/2011/RAND_TR971.pdf))

<sup>115</sup> Eiber. 21. Figure 1.1 showing probability of actual claims exceeding 125% of expected claims, decreasing from 15-20% for < 100 employees to under 5% after >350 employees.

*Insurance coverage by type in Wyoming*

Table 5, below, estimates the number of people in Wyoming and percent of the State’s total population covered by the types of insurance described in the previous section.

**Table 5:** Estimated insurance coverage status of Wyoming’s population

Type	Category	Insurer	Est. (000’s)	Percent	Confidence <sup>116</sup>
Private (55.7%)	Self-insured	Employer <sup>117</sup>	240.7	41.1	Med.
	Fully-insured	Large Group <sup>118</sup>	33.9	5.8	Med.
		Small Group <sup>2</sup>	23.8	4.1	Med.
		Individual - on exchange <sup>119</sup>	23.8	4.1	Med.
		Individual - off exchange <sup>120</sup>	4.0	0.7	Med.
Public (31.9%)	Medicare and Medicaid	Medicare (A/B/D) <sup>121</sup>	77.9	13.3	High
		Medicare Advantage (C) <sup>122</sup>	2.0	0.3	High
		Medicaid-only <sup>123</sup>	55.1	9.4	High
		Dual-eligible <sup>124</sup>	15.1	2.6	High
		CHIP <sup>125</sup>	3.3	0.6	High
	Military	TRICARE <sup>126</sup>	15.5	2.6	Med.
		VA <sup>127</sup>	9.5	1.6	Med.
	Other	IHS only <sup>128</sup>	3.5	0.6	Med.
		Institutionalized (non-LTC) <sup>129</sup>	5.2	0.9	Med.
Uninsured <sup>130</sup>			72.8	12.4	Med.
<b>Total<sup>131</sup></b>			<b>586.1</b>	<b>100.0</b>	<b>High</b>

<sup>116</sup> Because these estimates are combined from a variety of sources, this indicates the relative confidence in the accuracy of the numbers.

<sup>117</sup> 5-year ACS (2014) PUMS estimate for ESI in Wyoming is 50.93%. This was multiplied by the total 2015 estimate, and the large/small group member-year estimates subtracted.

<sup>118</sup> Fully-insured data calculated for each market by taking reported member months from 2014 Medical Loss Ratio (MLR) reporting forms for Wyoming and dividing by 12. MLR data available at: <https://www.cms.gov/CCIIO/Resources/Data-Resources/mlr.html>. The Department of Insurance survey of 2015 reported 14,116 lives.

<sup>119</sup> On-exchange enrollment statistics for 2016 from CMS, via the Kaiser Family Foundation (<http://kff.org/health-reform/state-indicator/state-marketplace-statistics/>)

<sup>120</sup> Difference between MLR reported member-years for individual market, less on-exchange. Some firms submitted MLR statements do not offer comprehensive health insurance.

<sup>121</sup> Data from CMS, via KFF, less dual-eligibles and reported Medicare Advantage estimate. <http://kff.org/medicare/state-indicator/total-medicare-beneficiaries/>

<sup>122</sup> <http://kff.org/medicare/state-indicator/total-enrollment-2/>

<sup>123</sup> Total Medicaid enrollment (point-in-time) from Wyoming Medicaid, less dual-eligibles.

<sup>124</sup> Wyoming Medicaid SFY 2015 Annual Report.

<sup>125</sup> Wyoming Department of Health - Division of Healthcare Financing. CHIP enrollment for SFY 2015.

<sup>126</sup> 5-year ACS (2014) PUMS estimate for TRICARE only is 2.64%, times total population.

<sup>127</sup> 5-year ACS (2014) PUMS estimate for VA only is 1.63%, times total population. The Department of Insurance reported that the VA saw 26.8 thousand individuals in Wyoming in 2015. The difference between this and the figure in the table is due to coverage by other, more comprehensive coverage (e.g. Medicare).

<sup>128</sup> 5-year ACS (2014) PUMS estimate for IHS only was 0.59%, times total population.

<sup>129</sup> 5-year ACS (2014) PUMS estimate for institutionalized population (1.21%) times total population, less Wyoming Medicaid enrollment for Nursing Home, Assisted Living Facility and Intermediate Care Facility groups.

<sup>130</sup> Original 5-year ACS (2014) PUMS estimate of 13.4% adjusted downward to reach total population. Final figure of 12.4% + 0.6% for IHS-only is within recent (2014) estimates for Wyoming’s uninsured:

<https://www.census.gov/content/dam/Census/library/publications/2015/demo/p60-253.pdf>

<sup>131</sup> Census QuickFacts population estimate for 7/1/2015 (<http://www.census.gov/quickfacts/table/PST045215/56>)

Of note, using a similar methodology with data from other states, Wyoming ranks first in the country in terms of percent of total lives in a self-insured ESI plan. New Hampshire (41.0%), Indiana (40.7%), New Jersey (38.0%), and Minnesota (37.9%) round out the top five.

*Insurance coverage by provider in Wyoming*

There are no good market share data for self-insured plans.<sup>132</sup> Table 6, below, uses Medical Loss Ratio (MLR) report submissions to CMS to estimate the market share of Wyoming’s fully-insured markets in 2014. Note that the situation has changed dramatically since 2014, with the exit of WINHealth and Assurant. 2015 data are expected to be submitted between July and October of 2016; the Department anticipates BCBS of Wyoming and United Healthcare will absorb the remaining market share.

**Table 6:** Fully-insured market share, by company (2014)<sup>133</sup>

<b>By Member Months / Covered Lives</b>					
<b>Company</b>	<b>Individual</b>	<b>Small</b>	<b>Large</b>	<b>Lives (MM/12)</b>	<b>Market Share</b>
BCBS of Wyoming	124,390	176,804	292,761	49,496	58%
WINHealth <sup>134</sup>	85,963	12,970	46,240	12,098	14%
Assurant <sup>135</sup>	62,652	60,498	3,233	10,532	12%
United Healthcare	27,150	18,446	40,153	7,146	8%
Aetna	2,019	4,618	20,914	2,296	3%
Geneve Holdings <sup>136</sup>	7,269	10,969	238	1,540	2%
BCBS of South Carolina <sup>137</sup>	13,062			1,089	1%
<b>By Premium Written</b>					
<b>Company</b>	<b>Individual</b>	<b>Small</b>	<b>Large</b>	<b>Total</b>	<b>Market Share</b>
BCBS of Wyoming	\$60,285,267	\$74,958,842	\$131,600,000	\$266,844,109	62%
WINHealth	\$52,004,536	\$6,857,932	\$21,759,092	\$80,621,560	19%
Assurant	\$23,012,574	\$25,833,477	\$1,088,000	\$49,934,051	12%
United Healthcare	\$7,442,690	\$6,728,017	\$1,988,280	\$16,158,987	4%
Aetna	\$581,106	\$1,842,808	\$8,297,348	\$10,721,262	2%
Geneve Holdings	\$1,627,843	\$4,553,004	\$71,488	\$6,252,335	1%
BCBS of South Carolina	\$2,997,747			\$2,997,747	1%

<sup>132</sup> The Department of Labor does maintain a Form 5500 database, but this only requires filings on the employer-level; for employers that cover multiple states (e.g. Walmart), there is only one listing. Additionally, all government-run plans (i.e., EGI, school districts, cities and counties) are not required to submit data to the DOL. These two factors makes it impossible to estimate coverage in the self-insured market by employer in Wyoming.

<sup>133</sup> Data from CMS 2014 MLR reports (latest available). Note that this table will likely look very different for 2015 and 2016, as several companies discontinue health insurance offerings.

<sup>134</sup> Liquidated. All policies terminated effective 12/31/2015.

<sup>135</sup> No longer continuing to offer health insurance (as of 6/10/2015)

<sup>136</sup> In Wyoming, Geneve Holdings is doing business as (DBA) Standard Security Life and Madison National.

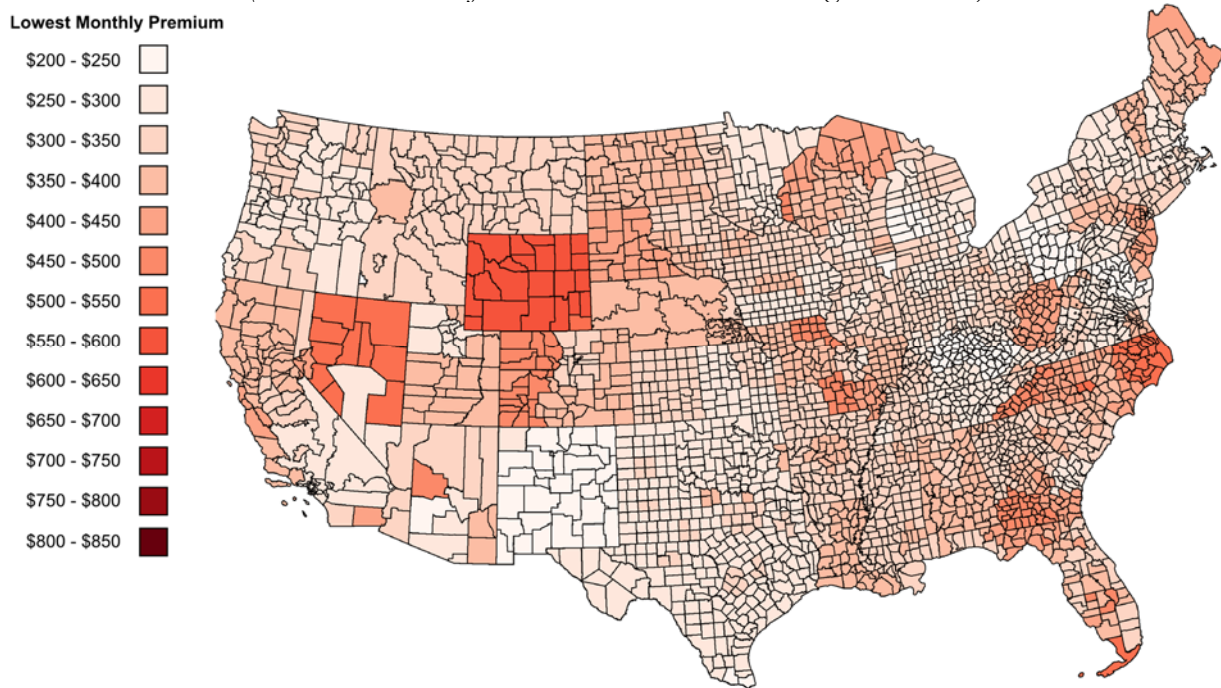
<sup>137</sup> Dental and Vision only, through Companion Life Insurance.

### Healthcare costs - individual market premiums

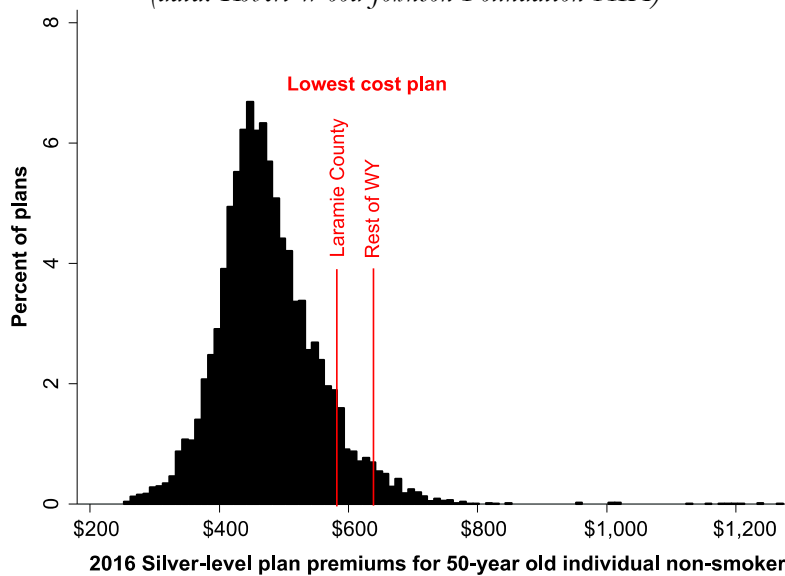
The Department does not have good price data on virtually any private insurance markets, from self-insured and large-groups to the small-group market. Negotiated rates between insurers and providers are considered to be proprietary and are generally not made publicly available. Standardized premium data only exist for the individual market.

Figures 10 and 11, below, show that when it comes to that specific market, Wyoming residents face some of the highest premiums in the United States. In Wyoming, for example, the lowest-cost Silver-level (70% AV) plan available in 2016 to an individual non-smoker who is 50 years old was Blue Cross Blue Shield's "BlueSelect Silver ValueTwo" plan, at \$586.41 in Laramie County and \$643.47 in the rest of the state.

**Figure 10:** Lowest premium, Silver-level plan, 50 year-old individual, 2016  
(data: Robert Wood Johnson Foundation HIX. Rating areas: CMS)



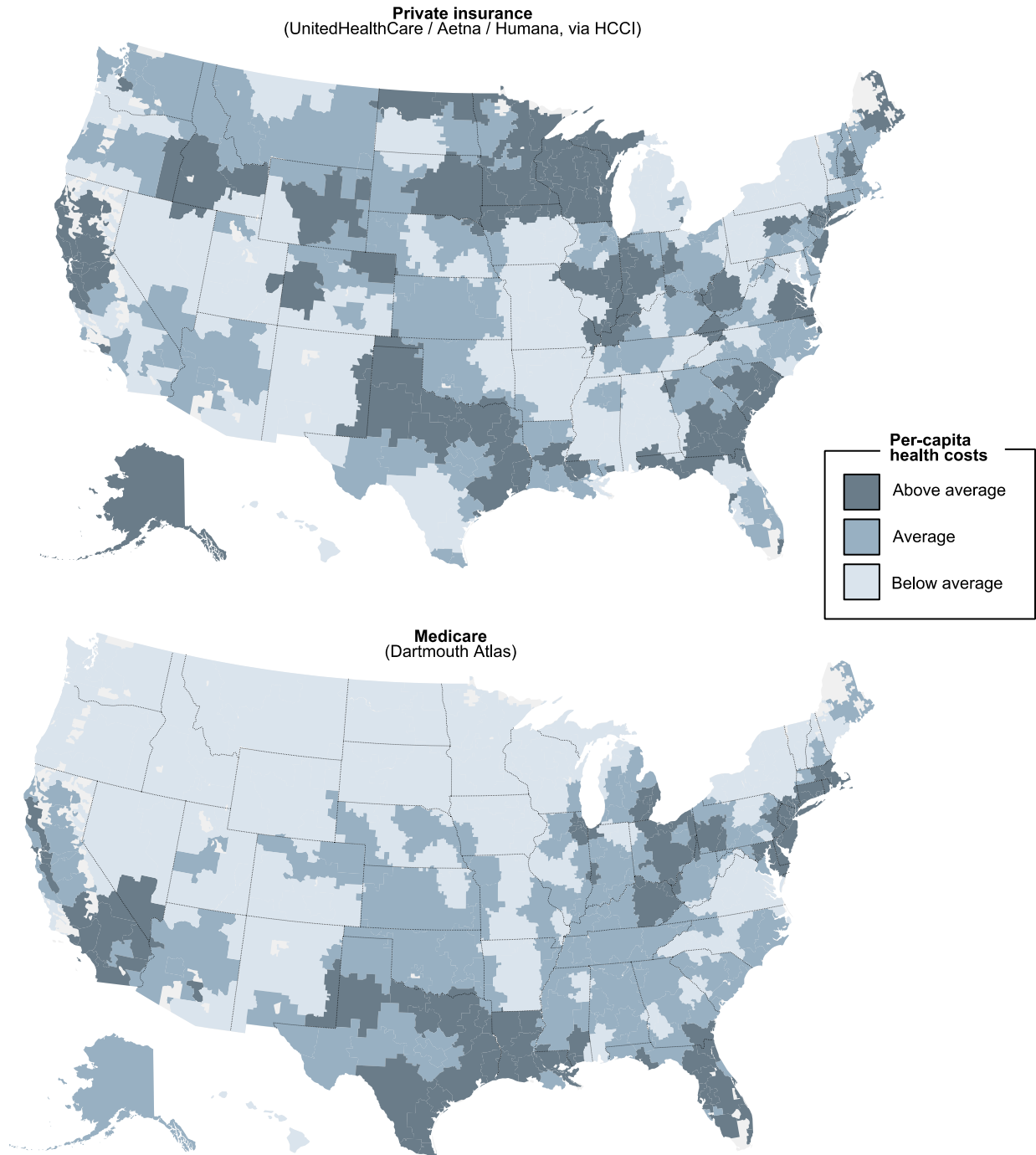
**Figure 11 -** Distribution of all (not just lowest-priced) Silver-level plan premiums on the exchange (2016)  
(data: Robert Wood Johnson Foundation HIX)



*Healthcare costs - data from the Dartmouth Atlas and the Health Care Cost Institute*

Two large-scale national datasets on health care costs include the traditional “Dartmouth Atlas” of Medicare costs and the newly-released Health Care Cost Institute (HCCI) data for privately-insured costs (Humana, United HealthCare and Aetna). Variation across the United States for both datasets are shown in Figure 12, below.

**Figure 12:** Variation in per-capita health costs by Hospital Referral Region<sup>138</sup>



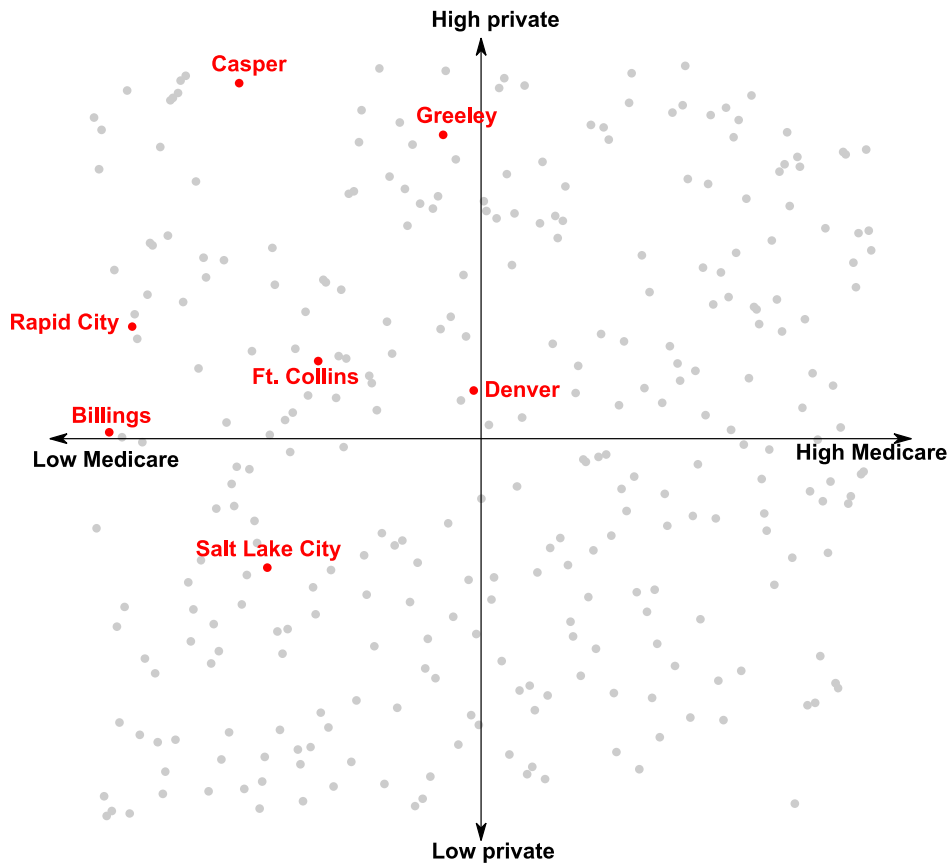
<sup>138</sup> Maps in Figure 12 and scatterplot in Figure 14 are reproduced from: Quealy and Sanger-Katz. “The experts were wrong about the best places for better and cheaper health care.” *New York Times*. Dec 15, 2015. Data is from HCCI and the Dartmouth Atlas. (<http://www.nytimes.com/interactive/2015/12/15/upshot/the-best-places-for-better-cheaper-health-care-arent-what-experts-thought.html>)

Figure 13, which follows, illustrates what is intuitive from the two maps: there is no correlation between high Medicare per capita costs and private insurance per capita costs. Note, that while the Casper Hospital Referral Regions has moderately-low Medicare costs, it has some of the highest private-side costs in the nation.

This data comes with a caveat: HCCI data for Wyoming is sparse. As shown on Table 6 (page 43), UnitedHealthCare only covers approximately 7,000 lives.

**Figure 13:** The (lack of) correlation between Medicare and private per-capita costs. Hospital Referral Regions around Wyoming highlighted and labeled in red.

*(data from Dartmouth Atlas and Health Care Cost Institute, scatterplot from New York Times)*



### *Healthcare costs - 2015 Employer Health Benefits Survey*

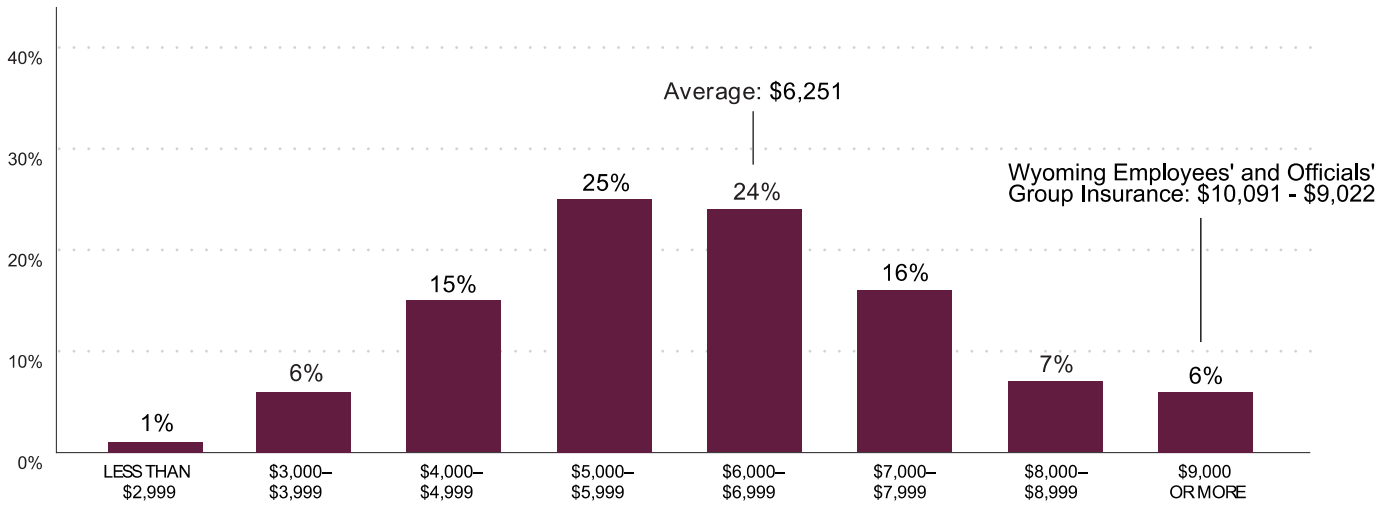
A third publicly-accessible dataset on health insurance costs comes from the Kaiser Family Foundation’s annual survey of employer health benefits. In the 2015 report<sup>139</sup>, the national average annual premium for a single employee was \$6,251 (approximately \$521 per month). This compares with Wyoming’s Employees’ and Officials’ Group Insurance annual premiums ranging from \$10,091 per employee (\$350 deductible) to \$9,022 per employee (\$1500 HDHP).<sup>140</sup>

The distribution of annual premiums for a single adult is shown in Figure 14, on the next page. Note that current single-employee premiums put the State of Wyoming in the top 6% of premium costs.

<sup>139</sup> Kaiser Family Foundation / HRET Employer Health Benefits Survey. 2015 Report. <http://files.kff.org/attachment/report-2015-employer-health-benefits-survey>

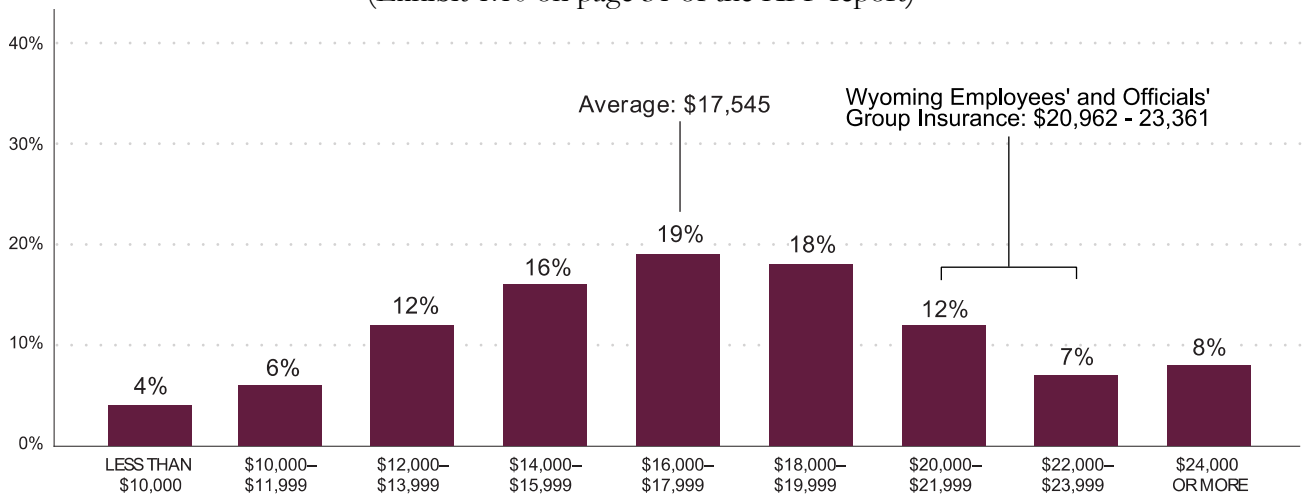
<sup>140</sup> <https://drive.google.com/file/d/0B6bA9LFa-kaJbHhfN05RaGFOaUU/view>

**Figure 14:** Distribution of average annual premiums for employer-sponsored insurance, single employee (Exhibit 1.9 on page 31 of the KFF report)



For a family, the national average was \$17,545 (approximately \$1,462 per month). This compares with a range between \$20,962 and \$23,361 for the Wyoming’s Employees’ and Officials’ Group Insurance program. The distribution is shown below in Figure 15. Note that, for family coverage, the State is in the top 27% of premium costs.

**Figure 15:** Distribution of average annual premiums for employer-sponsored insurance, single employee (Exhibit 1.10 on page 31 of the KFF report)



As with the HCCI dataset, there are some caveats. The averages in Figures 14 and 15 do not control for plan generosity (actuarial value or covered benefits) or family size, for example.

Nonetheless, taken as a whole, available data on premiums indicate that health care costs in Wyoming are among the highest in the nation.

# PART III: MULTI-PAYER CLAIMS DATABASE OPTIONS

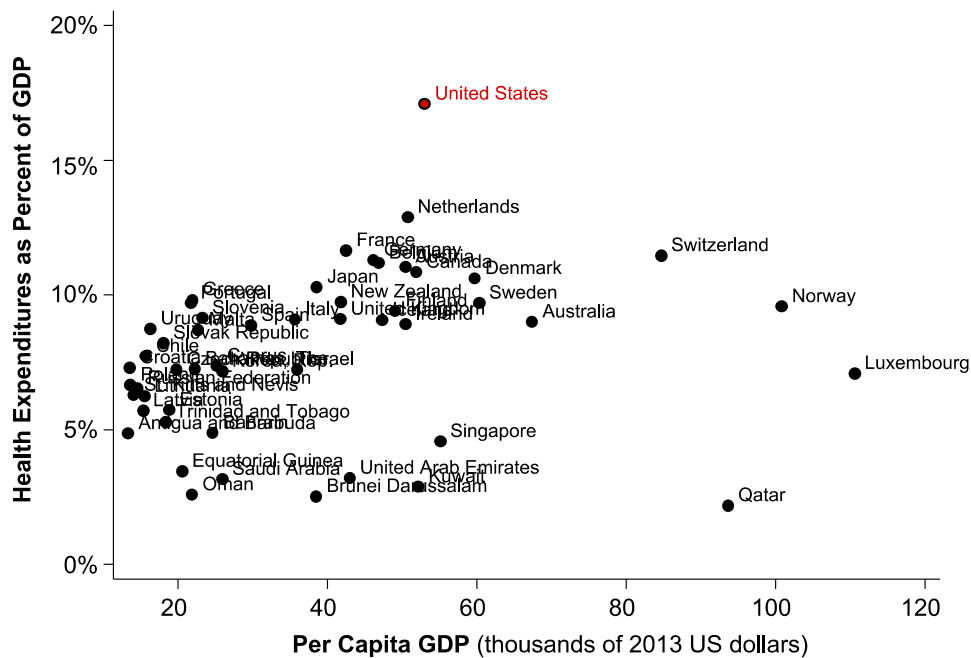
## What is the problem a claims database attempts to solve?

Generally speaking, healthcare in the United States is too expensive, and we are not sure why. High unit prices, excessive utilization in certain services, and administrative costs are some of the most compelling explanations. Ultimately, however, good data is not available to make informed decisions on health care.

### *Healthcare is too expensive*

The US spends 17% of its GDP on healthcare, which is double the average cost for developed (OECD) countries. It is true that, as societies grow richer, they tend to devote a greater share of resources towards health expenditures (see page 13). However, Figure 16, below, illustrates how the United States is an outlier even among upper-income countries.<sup>141</sup>

**Figure 16:** Health expenditures as percent of GDP vs. per-capita GDP, for selected “high income” countries (data: World Bank)



As noted in Part I, overall healthcare costs are a function of price and quantity. Evidence suggests that higher expenditures in the United States are due more to the prices paid for healthcare services rather than greater utilization.<sup>142</sup> As the cited Commonwealth Fund study notes, the US has:

- A younger population than most developed countries, and a lower smoking rate;
- Fewer physicians per capita and fewer consults than most other OECD countries; and
- Fewer hospital beds, fewer discharges, and shorter average lengths of stay than the OECD median.

<sup>141</sup> World Bank, 2013. <http://data.worldbank.org>.

<sup>142</sup> Health at a Glance 2011: OECD Indicators. <http://www.oecd.org/unitedstates/49084355.pdf> and

Squires, David. “Explaining the High Health Care Spending in the United States: an International Comparison of Supply, Utilization, Prices and Quality.” Commonwealth Fund. May 2012.

[http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2012/May/1595\\_Squires\\_explaining\\_high\\_hlt\\_care\\_spending\\_intl\\_brief.pdf](http://www.commonwealthfund.org/~media/Files/Publications/Issue%20Brief/2012/May/1595_Squires_explaining_high_hlt_care_spending_intl_brief.pdf)

On the other hand, it also has:

- A higher obesity rate;
- More knee replacements; and
- Above average utilization of MRI, CT and PET imaging.

The mixed evidence on utilization stands in contrast with available data on price. Tables 7 and 8, below, use International Federation of Health Plans data<sup>143</sup> to show how prices for both drugs and procedures in the US are generally much higher than in other OECD countries.

**Table 7: Average drug prices (International Federation of Health Plans)**

Drug	Canada	England	Netherlands	New Zealand	Spain	Switzerland	USA
Celebrex	\$51	\$112	\$112		\$164	\$138	\$225
Copaxone		\$862	\$1,190	\$898	\$1,191	\$1,357	\$3,903
Cymbalta	\$110	\$46	\$52		\$71	\$76	\$194
Enbrel	\$1,646	\$1,117	\$1,509	\$1,563	\$1,386	\$1,017	\$2,225
Gilenya	\$2,541	\$2,299	\$2,428		\$2,287	\$2,499	\$5,473
Gleevec	\$1,141	\$2,697	\$3,321	\$989	\$3,348	\$3,633	\$6,214
Humira	\$1,950	\$1,102	\$1,498	\$1,481	\$1,498	\$881	\$2,246
Nexium		\$42	\$23		\$58	\$60	\$215
Avg. % of US	51%	37%	44%	44%	49%	44%	100%

**Table 8: Average procedure prices (International Federation of Health Plans)**

Procedure	Australia	Netherlands	New Zealand	Spain	Switzerland	USA
CT Scan	\$500	\$279	\$731	\$94	\$432	\$896
Angiogram	\$741	\$174		\$290	\$216	\$907
MRI	\$350	\$461	\$1,005	\$154	\$138	\$1,145
Normal delivery	\$6,623	\$2,824		\$2,251	\$8,307	\$10,002
Hip replacement	\$26,297	\$11,513	\$19,011	\$8,010	\$19,722	\$26,489
Knee replacement	\$21,435	\$12,589	\$20,668	\$8,100	\$24,614	\$25,398
Avg. % of US	70%	35%	81%	23%	56%	100%

*The US healthcare market has a distinct lack of transparency in prices*

The lack of clear answers on overall costs is partly due to the multiple byzantine payment methods for healthcare services that make clear consumer-driven value comparisons virtually impossible. Hospital billing is an excellent example of the problems surrounding price transparency, simply because the process is at its most complex:

- Hospitals generally maintain a list of charges for all billable services (the “chargemaster”), but the actual cost of each service often has little relationship to the charge (see page 23). Further, in Wyoming, the chargemaster is not required to be publicly-disclosed, unlike some other states.<sup>144</sup>
- The price actually paid for services rendered is different from what is charged. In Wyoming, most insurers negotiate a percentage discounts off billed charges; in other States, however, payers can ignore

<sup>143</sup> 2013 Comparative Price Report. International Federation of Health Plans. <http://www.ifhp.com/1404121/>

<sup>144</sup> Arizona Department of Health Services. Hospital Charge Master Transparency. January 2014. <http://www.azdhs.gov/diro/reports/pdf/hospital-charge-master-transparency.pdf>

the chargemaster entirely and pay *prospectively* on a per diem or case rate, as do Medicare and Medicaid (see page 25). For all private payers, negotiated discounts off charges or other payment arrangements are considered proprietary trade secrets.

- In some cases, the physicians performing procedures in a hospital setting may be salaried hospital employees, in which case, the hospital would bill for their services. Many procedures, however, are actually performed by physicians who bill separately from the hospital. Some of these doctors may be out-of-network even if the hospital is in-network. In the case of a normal childbirth, for example, not only will the hospital and the OB/GYN typically bill separately for various services, but the mother and the child will be billed separately as well (the mother for the delivery, the child for being born) -- see page 25 for a discussion on how these payments could be bundled).
- Insured consumers ultimately pay a small fraction of the total bill; remaining healthcare expenses paid by the insurer are spread out among the rest of policyholders in the form of premiums -- and, in the case of employer-sponsored insurance, lower wages. Uninsured customers are often billed at full charges; those who can't pay end up as uncompensated care.

The lack of price transparency fuels market failures specific to the health insurance marketplace (see page 15); without knowing what anything truly costs, neither physicians nor patients can make informed choices on resource expenditures.<sup>145</sup> As health economist Uwe Reinhardt puts it:

*Until now, the U.S. health care “market” has been analogous to an imaginary world in which, say, employers offered to reimburse their employees 80 percent of the “reasonable cost” of all attire deemed “necessary” and “appropriate” on the job but, under the contracts negotiated with department stores by the fiscal intermediaries administering this “Clothes Benefit Program,” employees had to enter department stores blindfolded.*

*Only months after a shopping trip would the employee receive from the fiscal intermediary a so-called Explanation of Benefits (EOB) statement, explaining how much the employee had to pay for whatever he or she had stuffed, blindfolded, into the shopping cart on that shopping trip. Framed in bright red on that EOB would be the statement: “Pay X amount.”*

*X would represent 20 percent of what the intermediary would have judged, ex post, to be “reasonable prices” for those garments in the shopping cart deemed by that intermediary, ex post, to have been “appropriate” attire for the particular employee’s circumstances. It also would include 100 percent of the prices charged by the stores for items in the cart that were deemed by the intermediary, ex post, as “not necessary” or “inappropriate” and that were therefore not covered by the Clothes Benefit Program.<sup>146</sup>*

*Providing actionable information on healthcare value is the primary objective of a claims database.*

The primary objective of building an All-Payer or Multi-Payer Claims Database is therefore to provide actionable information to payers that facilitates value-based purchasing of healthcare services.

In its basic form, a voluntary multi-payer claims database may be useful for a group of contributing payers and Third Party Administrators to negotiate directly with providers for better value or higher risk-sharing.

In the long-term, the theory is that this kind of purchasing behavior will encourage competition among healthcare providers, which will in turn lower prices and increase quality.

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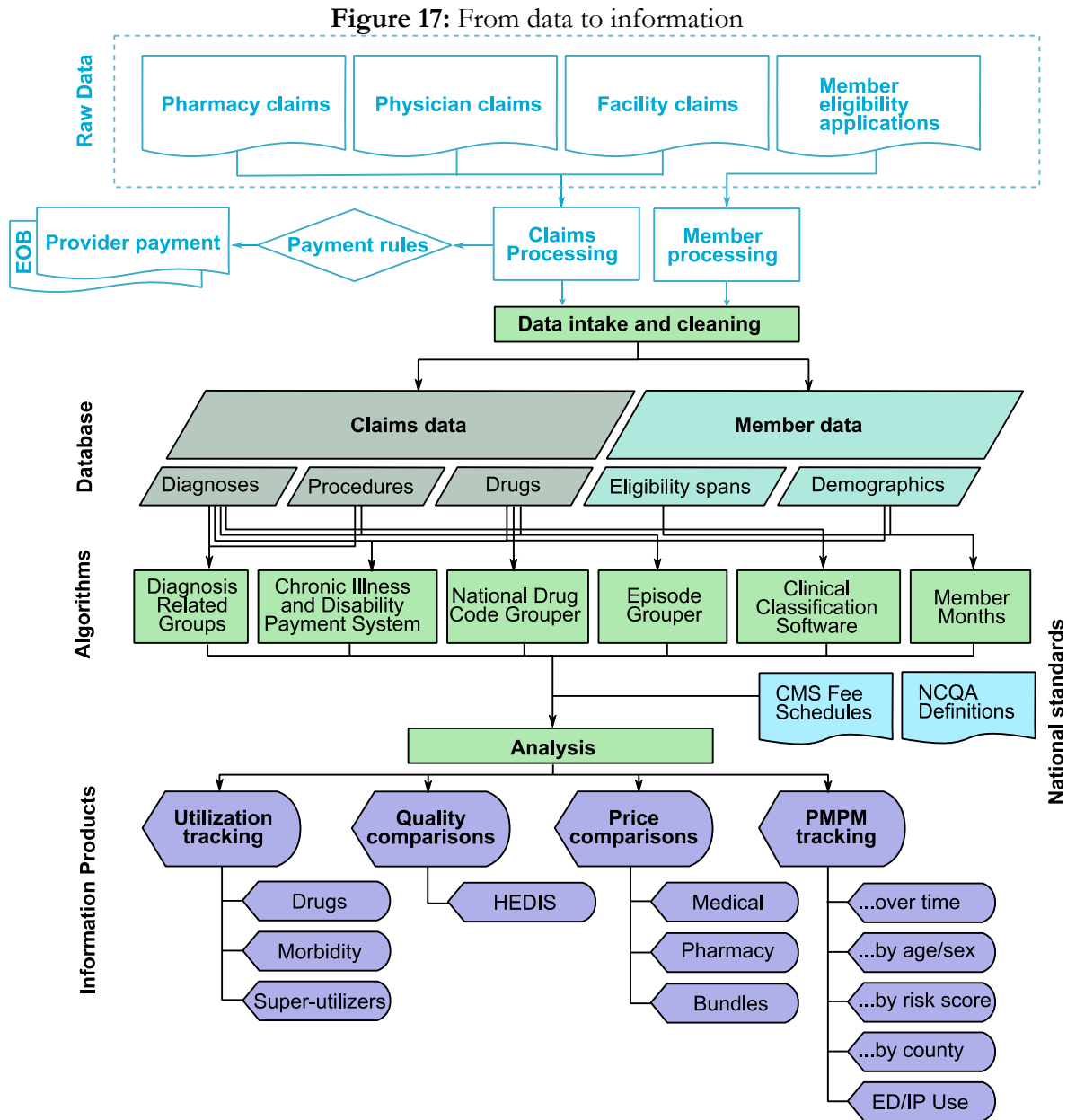
<sup>145</sup> Uwe E. Reinhardt. The Pricing of U.S. Hospital Services: Chaos Behind a Veil of Secrecy. *Health Affairs*, 25, no. 1 (2006) 57-69 (<http://content.healthaffairs.org/content/25/1/57.full.pdf+html>)

<sup>146</sup> Reinhardt. 64.

## How does a claims database turn data into actionable information?

### Notional structure

Figure 17, below, outlines how a claims database might operate, from the submission of claims data to the output of finished information products. There are significantly more technical issues with claims databases that are not discussed here; the intent of this section is simply to illustrate how a database might add value to raw data.



At the top of the figure are the raw claims submitted by providers. Depending on the nature and structure of the employer's health insurance plan, the areas highlighted in blue would be performed by the plan itself, a Third Party Administrator (TPA), or the insurer selling the plan an insurance product (see page 41).

A significant amount of detail is omitted from the figure - the insurer or TPA pays claims according to a complex series of fee schedules, member cost-sharing obligations, and negotiated provider contracts. Ultimately, a check is cut to the provider and the member receives an Explanation of Benefits (EOB).

However processed, raw claims and eligibility data is ultimately securely fed into the claims database. For many all-payer or multi-payer claims databases, a significant amount of work goes into standardizing and “cleaning” this raw data. As examples, the cleaner needs to ensure the validity of ICD-9/10 diagnoses and CPT procedure codes, dates and times, demographic data, and unique identifiers.

### *Analytical capacity is critical*

If a multi-payer claims database merely gathered data over time, it would be worthless. Value is realized only when the complexity of claims data can be reduced to intelligible information. Some of this can be done automatically through a variety of algorithms, a few of which are described below:

- **Member-months** must be calculated from eligibility span data and attributed with individual-specific variables.
- **Clinical classification software**<sup>147</sup> groups diagnosis codes (~14,000 ICD-9 codes and now ~69,000 ICD-10 codes) into more manageable clinical classifications and body systems. For example:
  - ICD-10 code T63113A, “Toxic effect of venom of gila monster, assault, initial encounter” would be grouped under “Poisoning by nonmedicinal substances”, and further under the “Injury/poisoning” category.
  - ICD-10 code E0810, “Diabetes due to underlying condition with ketoacidosis without coma” would group as “Diabetes mellitus with complications”, and further under the “Endocrine/metabolic” category.
- An **episode grouper** goes through the claims data to assign contiguous “episodes of care” brought on by a certain trigger (e.g., childbirth could be grouped with pre- and post-natal care). These groupers can also be used to identify “gaps” in care -- unfilled prescriptions, missed visits, etc.
- A **drug grouper** assigns NDCs (the National Drug Code is the unique identifier for each type of drug and packaging combination) into a hierarchy of therapeutic classifications. For example, a 25 mg oral capsule of Loxitane (NDC 52544049601) would be grouped as an anti-psychotic.
- The **Chronic Illness and Disability Payment System (CDPS)**<sup>148</sup> is an open-source hierarchical grouper that uses diagnoses and prescription data over a certain time period to group individuals into various disease categories. There are other, proprietary, risk-scoring groupers available. This facilitates both risk scoring and identification of groups with similar chronic conditions.
- A **DRG grouper**, either the MS-DRG (v. 33 for ICD-10)<sup>149</sup> or 3M’s All-Payer Refined DRGs<sup>150</sup>, takes inpatient claims data (diagnoses, procedures, patient status, present-on-admission codes) and groups the claims into standard inpatient episodes.
  - DRGs are described on page 25.

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<sup>147</sup> CCS is available at the AHRQ site: <https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp> and <https://www.hcup-us.ahrq.gov/toolssoftware/ccs10/ccs10.jsp>

<sup>148</sup> <http://cdps.ucsd.edu/>

<sup>149</sup> <http://www.ntis.gov/products/grouper/>

<sup>150</sup> [http://solutions.3m.com/wps/portal/3M/en\\_US/Health-Information-Systems/HIS/Products-and-Services/Products-List-A-Z/APR-DRG-Software/](http://solutions.3m.com/wps/portal/3M/en_US/Health-Information-Systems/HIS/Products-and-Services/Products-List-A-Z/APR-DRG-Software/)

- It is important to note, that even if the payer is still actually paying the hospital based on billed charges, grouping claims by DRGs retroactively facilitates apples to apples comparisons on price and quality across hospitals.

Other analysis is less automated; personnel need to be skilled enough to ask the right questions of the data and inform action. Ultimately, the right combination of technical capacity (e.g. database hardware and software, groupers, statistical software) and personnel is necessary for meaningful, accurate, and actionable analysis.

Example information products (purple in Figure 3) are described below, along with a description of how they might be actionable -- in other words, how they can inform action on the part of the health plan.

### *Information products: per-member per-month tracking*

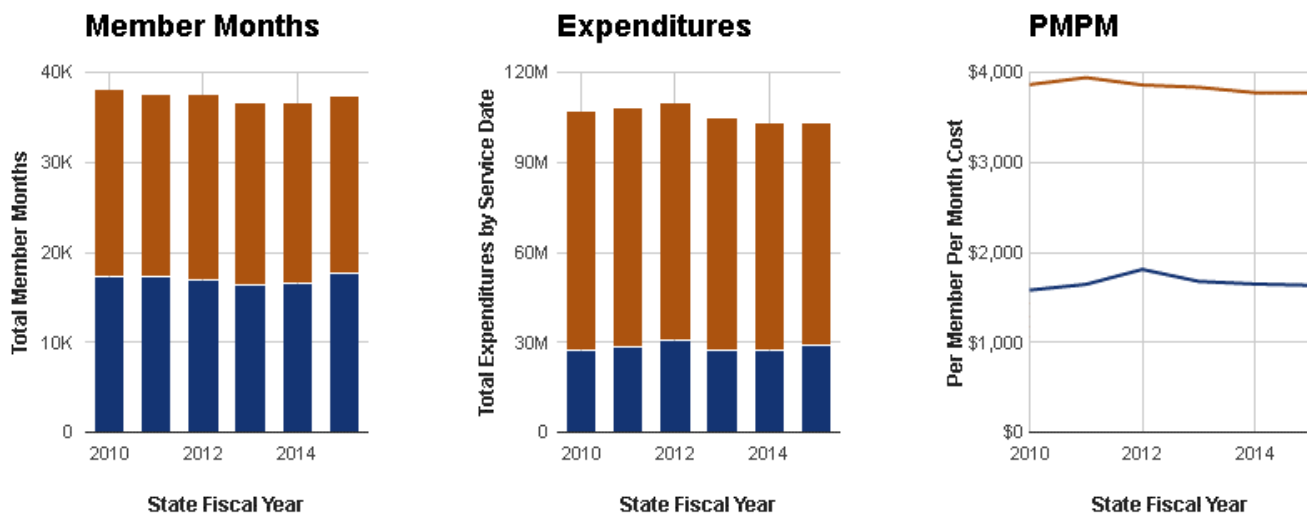
As noted on page 14, the per-member per-month, or PMPM, is the fundamental measure of the underlying average cost or utilization of a health plan. PMPM tracking is most often used to provide situational awareness of costs and trends to the plan administrators; it does not typically explain why costs change, however.

- PMPMs can use either expenditures (dollars) or utilization (emergency room visits, inpatient admissions, 30-day re-admissions) in the numerator, with member months (described on the previous page) in the denominator.
- As long as there are enough members included to ensure statistical validity and groups are comparable<sup>151</sup>, PMPMs can be “sliced and diced” in various ways to examine trends over time and across groups. For example, PMPMs can be used:
  - Over time, to see how quickly underlying costs are increasing.
  - By risk-score stratification or CDPS classification, to see how insureds with certain chronic conditions compare on cost.
  - By county, to see how costs are trending across geography.
  - By age group, to see if premiums match underlying costs.
  - By health plan selection, to see if healthier individuals are disproportionately moving towards plans with lower actuarial value (AV is explained on page 18).
- In terms of utilization, PMPMs can be similarly used to analyze things like:
  - Emergency room rates (i.e., visits per 1,000 members) that are emergent and non-emergent.
  - Inpatient utilization (admits and 30-day re-admits).
  - Caesarean section and elective delivery rates.
  - Joint replacement rates.
- Wyoming Medicaid uses PMPMs extensively to track costs across various groups. Figure 18, on the next page, shows how the enrollment and cost of individuals in nursing homes with that of individuals in a home setting (the Long-Term Care waiver) can be compared in an on-line “dashboard.”
- This kind of analysis facilitated the recommendation in 2013 for the Legislature to “uncap” the LTC and ALF Waivers, in order to not only offer more services in a less-restrictive and more appropriate setting, but save money in the State Medicaid program in the long-term.

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<sup>151</sup> Private insurers have different benefit plans, payment methodologies and overall health statuses than public insurers. Comparing PMPMs between private and public insurers would therefore not be very meaningful.

**Figure 18:** Medicaid PMPM analysis for nursing home (brown) and LTC Waiver (blue), SFY 2010 - 2015



*Information products: value comparisons*

Because the analysis described in previous pages effectively “standardizes” claims data by adjusting for acuity (i.e., through DRGs) and by bundling together episodes of care, payers can better assess the value of the healthcare services they purchase. “Value” is thought of here as a combination of price and quality. A plan, for example, could see how the price for a knee-replacement bundle or childbirth bundle compares across the hospitals in its service area, and contrast those prices with quality outcomes.

- While it has its issues, claims data is one source of quality data. The National Committee for Quality Assurance (NCQA) has developed hundreds of national benchmarks that can be calculated from claims data alone, and many more using claims data in conjunction with medical records.
- Prices for the same “standardized” services can be compared throughout the service area (and outside of the service area -- e.g., the Wal-mart/Lowes example on page 20). Payers can use this information to strategically direct their insureds towards higher-value providers. If the plan can effectively direct its market share, value data can support negotiations with other providers on price or risk-sharing arrangements (see page 27 for a discussion on how market share influences contract negotiations). In some cases, leverage from “shoppable” services might be brought to bear on prices for emergency / “non-shoppable” services.
- The more covered lives are in the database, the better price and quality data will be.

*Information products: utilization tracking*

By using claims data to infer health status, the database would also be able to show the burden of disease (morbidity) across the population of insureds. Besides being interesting from a public health perspective, this could allow payers to tailor wellness programs to specific, high-cost chronic conditions (discussed on page 36) or build a Super-Utilizer Program (SUP) to target the highest-risk insureds (see page 38).

*Actionable information is valuable information*

In all of the examples described above, the importance of actionable information cannot be stressed enough. Knowing, for example, that 20% of total medical costs go towards primary diagnoses of cancer is not inherently actionable. Having a list of “super-utilizers”, or knowing which specific hospitals offer better value for knee replacements can directly inform care coordination efforts or network design, respectively.