Data-Driven Decision Making
Principle #2

A case study on an alternative military healthcare benefit design

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We modeled an alternative military healthcare benefit design and billions of dollars of savings

Estimated annual savings (FY $2017)

$3.4 billion

IDA 2015

IDA: Institute for Defense Analyses; HA: Health Affairs (DoD); TMA: TRICARE Management Authority (DoD)
CBO: Congressional Budget Authority
...but others looked at similar reforms and found only slight cost changes.

Estimated annual savings (FY $2017)

- $3.4 billion
- $300 million

IDA 2015

$3.4 billion

HA 2013
TMA 2012

IDA: Institute for Defense Analyses; HA: Health Affairs (DoD); TMA: TRICARE Management Authority (DoD); CBO: Congressional Budget Authority
... and some found large cost increases

Estimated annual savings (FY $2017)

$3.4 billion

IDA 2015

-$300 million

HA 2013 & TMA 2012

-$1.7 billion

CBO 2008

IDA: Institute for Defense Analyses; HA: Health Affairs (DoD); TMA: TRICARE Management Authority (DoD); CBO: Congressional Budget Authority
What did we do differently?
Principle 2

Ask how well the available data match the population of interest
What is the military healthcare benefit and why does it need an alternative design?
The Military Health System provides a health benefit, known as TRICARE, to over 9 million people.
The Military Health System provides a health benefit, known as **TRICARE**, to over 9 million people

Active Duty Service Members

... and their family members
The Military Health System provides a health benefit, known as **TRICARE**, to over 9 million people.

- Active Duty Service Members
- ...and their family members
- ...and military retirees (and their family members, too)
There are two main benefit options

**TRICARE Prime**
An HMO-like option

**TRICARE Standard/Extra**
A PPO-like option
Why does it need an alternative benefit design?
Military healthcare costs a lot!

DoD spends $50 billion annually on the MHS
(That’s around 10% of DoD’s budget)

Healthcare costs are eating the Defense Department alive
Beneficiaries want better access and choice

Provider Network Size Comparison
Fayetteville, NC (Fort Bragg)

<table>
<thead>
<tr>
<th>Specialty</th>
<th>TRICARE</th>
<th>GEHA</th>
<th>BCBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Practice</td>
<td>64</td>
<td>124</td>
<td>148</td>
</tr>
<tr>
<td>OB/GYN</td>
<td>36</td>
<td>87</td>
<td>114</td>
</tr>
<tr>
<td>Orthopedic Surgery</td>
<td>15</td>
<td>43</td>
<td>163</td>
</tr>
</tbody>
</table>

GEHA: Government Employees Health Association
What was the proposed benefit design?
A premium-based insurance model was proposed Consistent with an employer-sponsored benefit program

**TRICARE Choice** was to be modeled after the Federal Employees Health Benefit (FEHB) Program

An FEHB-like benefit; not **enrollment in FEHB**
FEHB offers a cafeteria-style menu of health plans

Employee **chooses** plan

Employee pays **employee's share** of premiums

Government pays **government’s share** of premium
FEHB offers a cafeteria-style menu of health plans

Employee *chooses* plan

Employee pays *employee's share* of premiums

Government pays *government's share* of premium

<table>
<thead>
<tr>
<th>Plan Name</th>
<th>Total Premium</th>
<th>Government Pays</th>
<th>Employee Pays</th>
<th>Government Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCBS Standard</td>
<td>$643</td>
<td>$438</td>
<td>$285</td>
<td>68%*</td>
</tr>
<tr>
<td>GEHA Benefit Plan</td>
<td>$437</td>
<td>$328</td>
<td>$109</td>
<td>75%</td>
</tr>
</tbody>
</table>

*These plans receive the maximum contribution, set to 72 percent of the weighted average of all plans.*

Source: IDA Paper P-5123
DoD’s FEHB-like benefit works the same way—but with some key differences

We remove retirees over 65
   They’re covered by Medicare and TRICARE for Life

We remove Active Duty Service Members
   They are covered by a Service Member plan

We add a **basic allowance for healthcare (BAHC)**
   For Active Duty family members only
How did we construct a valid cost estimate of a fundamentally different design?
We leveraged data on the existing FEHB program

Model the cost of insuring

the DoD population

based on the FEHB program’s cost of covering

the federal civilian population
FEHB is a great analytical comparison program

FEHB is the largest employer-sponsored health benefit program in the US—over 200 plans.

It covers a similar number of lives as the DoD would need to cover (government employees and their dependents).

Extensive geographic span—health plans offered in all 50 states and overseas.
Our analytical approach had two main steps

Model DoD enrollment behavior

Model premiums
Our analytical approach had two main steps

...Okay, three

Model DoD enrollment behavior

Model premiums

Multiply
We needed to avoid using an over-simplified approach
What if we just allocated DoD beneficiaries across the current FEHB plan enrollment distribution?

If, say, 40% of FEHB beneficiaries choose Blue Cross Blue Shield Standard, then we assume 40% of DoD beneficiaries will choose the same plan.

Wouldn’t that work?
No. Why?
Principle 2

Ask how well the available data match the population of interest
The DoD population is significantly younger

**Beneficiary Age Distribution**

- **DoD population**
  - <23
  - 23-34
  - 35-44
  - 45-54
  - 55-64

- **FEHB population**
  - 65-74
  - 75+

Source: IDA Paper P-5123
Age was key—but we had to consider other population characteristics, too!

**Demographic**: marital status and dependents, education, gender, race

**Socioeconomic**: sponsor’s income

**Geographic**: state of residence
After we thought about our populations, we created an approach to address the differences
We predicted DoD enrollment using a cohort-based method

<table>
<thead>
<tr>
<th>Coverage Level* (2)</th>
<th>Age Group (7)</th>
<th>Income Group (8)</th>
<th>States (52)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Only</td>
<td>Under 24</td>
<td>Less than 34,999</td>
<td>50 states</td>
</tr>
<tr>
<td></td>
<td>24–34</td>
<td>35,000 to 49,999</td>
<td>DC</td>
</tr>
<tr>
<td></td>
<td>35–44</td>
<td>50,000 to 64,999</td>
<td>OCONUS</td>
</tr>
<tr>
<td></td>
<td>45–54</td>
<td>65,000 to 79,999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>55–64</td>
<td>80,000 to 94,999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>65–74</td>
<td>95,000 to 109,999</td>
<td></td>
</tr>
<tr>
<td></td>
<td>75 &amp; up</td>
<td>Greater than 150,000</td>
<td></td>
</tr>
</tbody>
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*Numbers in parentheses represent number of levels within each category.
We predicted DoD enrollment using a cohort-based method

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**Example**

24–34-year olds with dependents earning $35–49K living in Kentucky

*Numbers in parentheses represent number of levels within each category.
Our cohort approach made a big difference

Let’s look at FEHB’s **two most popular plans**

and see how they fared with DoD beneficiaries
Our cohort approach made a big difference

Blue Cross Blue Shield
Standard

$590 per month
Our cohort approach made a big difference

Blue Cross Blue Shield
Standard

Blue Cross Blue Shield
Basic

$590 per month

$330 per month
DoD beneficiaries selected a lot fewer “Cadillac plans”

**FEHB vs predicted DoD enrollment percentage**

- **Standard**
  - FEHB: 43%
  - Predicted: 24%
- **Basic**
  - FEHB: 20%
  - Predicted: 29%

*Source: IDA Paper P-5123*
We’ve got enrollment behavior, now we need to model total premium costs
It’s too soon to start multiplying

We have plan enrollment and we have plan premiums
Can’t we just do this?

\[ \sum_{i} \text{enrollment}_i \times \text{premium}_i + \text{BAHC} = \text{Total Cost to DoD} \]

Source: IDA Paper P-5123
It’s too soon to start multiplying

We have plan enrollment and we have plan premiums. Can't we just do this?

\[ \sum_{i} \text{enrollment}_i \times \text{premium}_i + \text{BAHC} = \text{Total Cost to DoD} \]

<table>
<thead>
<tr>
<th>Unadjusted Premium Cost</th>
<th>$18,600</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAHC</td>
<td>+ $3,600</td>
</tr>
<tr>
<td>Total Cost to DoD</td>
<td>$22,120</td>
</tr>
</tbody>
</table>

Source: IDA Paper P-5123
No. Why?
Principle 2

Ask how well the available data match the population of interest
Younger populations cost less to insure

Average Per Capita Healthcare Spending in the US

- 17–23: $3,100
- 24–34: $4,100
- 35–44: $5,700
- 45–54: $7,300
- 55–64: $9,400
- 65+: $18,400

Source: IDA Paper P-5123
Premiums are determined by enrollment

BCBS **Standard** $590

BCBS **Basic** $330

Source: IDA Paper P-5123
Premiums are determined by enrollment

BCBS Standard

$590

BCBS Basic

$330

FEHB population

BCBS Standard Age Distribution

BCBS Basic Age Distribution

Source: IDA Paper P-5123
Premiums are determined by enrollment and **we just changed enrollment**

**BCBS Standard**
- $590

**BCBS Basic**
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**Source:** IDA Paper P-5123
Premiums are determined by enrollment and **we just changed enrollment**

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<th>Plan Type</th>
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<td>$590</td>
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<td>BCBS Basic</td>
<td>$330</td>
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</table>

**Source:** IDA Paper P-5123
The difference in age distribution reduces DoD’s estimated premium cost by nearly $3 billion.
Age isn’t the only factor...

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unadjusted Premium Cost</td>
<td>$18,600</td>
</tr>
<tr>
<td>Age adjustment</td>
<td>− 2,900</td>
</tr>
<tr>
<td>Other population adjustments</td>
<td>− 1,200</td>
</tr>
<tr>
<td>Total Premium Cost</td>
<td>$14,500</td>
</tr>
</tbody>
</table>

Source: IDA Paper P-5123
Don’t forget principle #2
In this case study, ignoring principle #2 leads to a $4 billion overestimate of premium costs.
Back Up
We created discounts rates for each plan using age weighted per capital healthcare spending.

<table>
<thead>
<tr>
<th>Plan</th>
<th>Weighted Averages</th>
<th>Population Correction Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FEHB</td>
<td>DoD</td>
</tr>
<tr>
<td>BCBS Basic</td>
<td>$6,975</td>
<td>$5,900</td>
</tr>
<tr>
<td>BCBS Standard</td>
<td>$8,626</td>
<td>$7,462</td>
</tr>
</tbody>
</table>

Source: IDA Paper P-5123