# Core Project Scenario:
# Cougar Health

Cougar Health is a start-up health insurance company. They intend for their company to facilitate the sharing of information between them, the healthcare service providers, and the patient enrollees. For Cougar Health, the software automates a lot of tasks and allows the company to track costs. For the healthcare service providers (HSPs), it automates the billing procedures. For the patient enrollees, it provides a central place to view information about the benefits provided by the insurer and healthcare services. Marti Sheridan, the Cougar Health Vice President of Information Technology, wants a software program developed that supports these goals. The information that you gathered from Mrs. Sheridan and her staff follows.

Cougar Health offers its insurance beneficiaries two insurance plans—Basic and Extended. The two plans offer similar benefits, but with different coverage at a different cost. A plan coverage year (PCY) starts 01 July of one year until 30 Jun of the following (01 July 2016 to 30 June 2017, for example). A comparison of the specific benefits of each plan is contained in Table I. Each plan must have a primary enrollee (beneficiary). The primary enrollee may elect to add dependents, which are labelled as "dependent enrollees". The "Plan Year Maximum Benefit" is the maximum amount that the company is willing to pay to a single primary enrollee and all of that enrollee's dependent enrollee during a PCY. It is currently "unlimited" but it may need to change in the future. The "Out of Pocket Maximum" is the maximum amount, per PCY, that the plan requires the enrollees to pay themselves (includes copayments, but not any of the plan fees included in Table II). Once this "out of pocket" value is met, the insurance company will cover all costs for healthcare services (including copayments) up to the Plan Year Maximum Benefit, for the remainder of the PCY. The **"**Annual Plan Deductible**"** is the amount that must be paid (excluding copayments) before the plan will pay any of the healthcare costs. Enrollees need not see a primary care physician for a referral before seeing a specialist; they can just go direct to the specialist. Similarly, the enrollees need not go to only in-network HSPs (those with pre-negotiated rates). However, Cougar Health will only allow a service charge up to what they'd normally pay their in-network providers for some benefits and plans. Costs over the pre-negotiated amount for these benefits are billable directly to the enrollee and do not count toward the Out of Pocket Maximum amounts. At the start of a plan coverage year, the amounts paid by all parties are reset to zero. Examples are provided below.

The cost structure for each plan is detailed in Table II. Enrollees can change a plan at any time but there is a fee associated with the change. The details of the plan change fee are also provided in Table II.

As examples:

> An enrollee with a $250 Annual Plan Deductible visits an in-network physician and the services cost $125, all of which is allowable under pre-negotiated maximum physician service charge of $150. The enrollee's plan lists the Physician Office Visit benefit as 90% of network charges. The enrollee has not received any other health services this PCY. Normally, Cougar Health would cover 90% ($112.50) of the service. However, as the $250 Annual Plan Deductible has not been met, the enrollee is responsible for the $125 fee. The $125 amount is also applied to the Annual Plan Deductible met value, and to the Out of Pocket amount for the individual and family.
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> A month later, in the same PCY, the same enrollee goes to the emergency room of an in-network provider and services cost $700, all of which is allowable under pre-negotiated maximum emergency room service charge of $1000. The enrollee's plan lists the emergency room benefit as 100% of network charges after $100 copayment. The enrollee is responsible for a $100 copayment of the $700 service bill, leaving a $600 balance. Cougar Health would then normally pay 100% of that $600 balance. However, the enrollee's Annual Plan Deductible has not been fully met. As such, after paying the $100 copayment, the enrollee is responsible for an additional $125 of the $600 balance (the value of the unmet Annual Plan Deductible). Cougar Health will then pay the remaining $475 for the emergency room service. The $125 is applied to the Annual Plan Deductible met value. The $225 amount ($100 + $125) is then applied to the Out of Pocket amount for the individual and family, bringing those totals to $350 each.
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> Six months later, in the same PCY, a dependent enrollee on the plan also goes to the emergency room. However, the dependent enrollee goes to an out-of-network provider. The dependent enrollee has not received any other health services this PCY. The out-of-network provider charges $1300 for the emergency room visit. Cougar Health is only willing to allow a $1000 service fee. This means that the dependent enrollee must first cover the $300 overage. Next, the Annual Plan Deductible of $250 must be met, leaving a $750 balance of the $1000 allowable charge. Then, the dependent enrollee must cover the $250 copayment for the emergency room service per plan benefit, leaving a $500 balance that Cougar Health will pay. While $250 is applied to the Annual Plan Deductible met value, the $500 amount that the dependent enrollee paid ($250 + $250) is applied to the Out of Pocket amount for the specific dependent individual and family, bring the family total to $850. Note that the $300 overage paid by the dependent enrollee is not counted as either going towards the Annual Plan Deductible or the Out of Pocket amounts for either individual or family.

Cougar Health has pre-negotiated maximum payment amounts for specific services included as benefits. All in-network HSPs have agreed to this maximum amount. A HSP may charge equal to or less than this maximum amount—for which they will only receive the amount billed. Alternatively, the HSP may submit a bill for greater than the maximum pre-negotiated amount (to reflect their costs on paperwork, for example). In this case, the in-network HSP will only receive the maximum amount. In the case that an out-of-network HSP bills for more than the pre-negotiated in-network maximum, and the enrollee is receiving a service benefit without a "of

network charges" restriction, then Cougar Health will apply the benefit to the entire billed amount. As described above, if there is an in-network restriction on the benefit, then any amount charged by an out-of-network HSP that exceeds the pre-negotiated amount is passed on directly to the enrollee. The maximum rate that an in-network HSP will be paid for a service is stated in Table III.

Mrs. Sheridan explains that the fees and percentages listed in Tables I – III are subject to change. Those provided are for the current PCY. Each year Plan Administrators are responsible for viewing health care costs and adjusting the values accordingly. In addition to fees and percentages, the Plan Administrators may also need to adjust whether the benefit is subject to the "in-network" maximum value restriction. Finally, they may also need to add and remove benefit services. They have discussed adding a third plan, but there is nothing specific at the moment.

New customers may become enrollees at any time during the PCY. Every insurance plan is assigned a unique identification number. Primary enrollees and all of their dependent enrollees are associated with this same number. However, each enrollee is also individually identified by social security number and a unique healthcare enrollee number. It is the latter number that is used by HSPs when submitting bills. New dependents may be added at any time. Dependents may only be removed if deceased or in the first month of each PCY. A primary enrollee and all of the dependent enrollees must be on the same plan. Once per calendar year, the insurance policy plan type may be changed. If the change occurs during the first month of the PCY, there is no charge for the change. Otherwise, the charge incurred is as listed in Table II.

When adding a primary enrollee to a new insurance policy, the company collects the primary enrollee's full name, social security number (SSN), mailing address, billing address (if different), and contact (phone/email) information. For dependent enrollees, the enrollee's full name, SSN, contact information, and relationship to the primary enrollee are collected.

Cougar Health wants the software to provide Web-based access of information to its patient enrollees. The system must provide an overview of the enrollee's plan, the ability to modify the plan, and the ability to see charges against the plan. Plan information should include items such as plan type, benefits for each service offered, monthly cost for the primary enrollee, monthly cost for each dependent enrollee, and a total monthly cost. The primary enrollee must be able to change the plan type and modify dependent enrollees associated with the primary enrollee. The primary enrollee must also be able to see all charges billed to the insurance plan for all enrollees that are a part of this policy. This also includes plan fees billed by Cougar Health. This search result should be configurable by date. An information screen should also provide information such as how much of the Plan Year Maximum Benefit remains, how much Out of Pocket expense remains per enrollee on the plan and for the family, and how much Annual Plan

Deductible remains for each enrollee. A dependent enrollee may only see charges associated with that specific dependent enrollee. Similarly, the dependent enrollee should be able to obtain Out of Pocket and Annual Plan Deductible remainders just for that dependent enrollee. If Web access is unavailable, the enrollee may call a Cougar Health Enrollee Support Specialist to assist with the getting any of the above information directly from the software system. To use this service, the enrollee must have set up a special phone Personal Identification Number (PIN) which is given to the Enrollee Support Specialists before any information is given out. PIN creation is done either during account creation or over the Web. The last service provided to the enrollees is to be able to search for in-network HSPs that offer a specific benefit service.

The healthcare service providers must also be able to access the Cougar Health software system via the Web. Each HSP that bills Cougar Health must have an account created that includes the HSPs company name, a list of Cougar Health benefit services offered, personnel contact information, and remittance address where checks will be mailed. The HSP may optionally also provide a bank name, account number, and routing number for direct deposit. The HSP must be capable of submitting an electronic bill for services that includes the policy number, the specific patient enrollee, the service(s) provided, and the charge for each service. Once all data is properly provided, the Cougar Health software system will respond to the HSP with the amount allowed for the service, the amount for which the enrollee is responsible, and the amount for which Cougar Health is responsible. Note that the "amount allowed" may only be reduced for in-network HSPs. While Cougar Health may not pay maximum amount overages to out-of-network HSPs, they are passed onto the enrollee and, therefore, not reduced. If Web access is unavailable for some reason, the HSPs may call Cougar Health on the phone and provide the above information to a Cougar Health Provider Support Specialist. As with the enrollees, the HSP must provide a unique phone PIN to access this feature. The Provider Support Specialist will then input all necessary data for the HSP and provide the resultant system information.

The Cougar Health accounting department needs to access the software system in order to manage the company's cash flow. On a monthly basis, a report is generated that shows the number of enrollees in each plan, the total amount of income from each plan, and the total enrollee plan payments for the month. It also shows the number of bills received from HSPs, the total amount that Cougar Health owes to the HSPs and the percentage of the total allowable charges for which Cougar Health is paying during that month—all broken out by in/out of network HSPs, and then by major service category (Hospital, Physician, Other). Again, limitations on allowable charges only pertain to in-network HSPs. The percentage that Cougar Health is paying is equal to the amount that Cougar Health is paying for billed services divided by the sum of the allowable amount billed by all in-network HSPs and total amount billed by the out-of-network HSPs.

The software system must also print out a report that compares the amount that Cougar Health is paying, broken out by insurance plan type. This report should be modifiable by date range and include the amount paid across all bills in the specified timeframe and the percentage of the total amount from all bills that the paid amount represents. Again, the total amount from all bills value should be adjusted to reflect the maximum billable amount by in-network HSPs.

Cougar Health employs managers that must have the ability to perform all duties of the aforementioned employees (Enrollee Support Specialist, the Provider Support Specialist, and the accountants). Additionally, these managers require the capability to manage the employee accounts on the software application.

**Table I: Plans Benefits Comparison**

| **Benefit** | **Basic** | **Extended** |
|---|---|---|
| Plan Year Maximum Benefit | $250,000 | $1,000,000 |
| Out of Pocket Maximum<br>• Per Individual Enrollee<br>• Per Family | <br>$ 9,500<br>$18,000 | <br>$ 6,500<br>$12,000 |
| Annual Plan Deductible | $250 per enrollee | $0 |
| **HOSPITAL SERVICES** | | |
| Inpatient | 90% of network charges after $400 copayment | 100% after $300 copayment |
| Inpatient (Behavioral Health) | 90% of network charges after $400 copayment | 100% after $300 copayment |
| Emergency Room | 100% after $250 copayment | 100% after $250 copayment |
| Outpatient Surgery | 90% of network charges after $250 copayment | 100% after $250 copayment |
| Diagnostic Lab & X-Ray | 90% of network charges | 100% |
| **PHYSICIAN SERVICES** | | |
| Physician Office Visits | 90% of network charges | 100% after $20 copayment |
| Specialist Office Visits | 90% of network charges | 100% after $30 copayment |
| Preventive Services | 100% | 100% |
| Baby Care | 100% | 100% |
| **OTHER SERVICES** | | |
| Durable Medical Equipment | 80% of network charges | 80% of network charges |
| Nursing Facility | 90% of network charges | 100% |
| Physical Therapy | 90% of network charges | 100% after $30 copayment |

**Table II: Plan Fee Structure**

| **Fee** | **Basic** | **Extended** |
|---|---|---|
| Primary Enrollee | $45 / month | $65 / month |
| Dependent Enrollee | $20 / month each | $25 / month each |
| **CHANGE FEE*** | **Change to** | **Change to** |
| Primary Enrollee | $150 | $50 |
| Dependent Enrollee** | $40 each | $20 each |

*Only one change allowed in one year's time.

**Dependents must be in the same plan as the primary enrollee.

**Table III: In-Network HSP Negotiated Maximum Service Payments**

| **Service** | **Maximum Payment** |
|---|---|
| **HOSPITAL SERVICES** | |
| Inpatient | $2,000 / day |
| Inpatient (Behavioral Health) | $1,500 / day |
| Emergency Room | $1,000 |
| Outpatient Surgery<br>• Level I<br>• Level II<br>• Level III | <br>$ 4,000<br>$10,000<br>$30,000 |
| Diagnostic Lab & X-Ray | $500 |
| **PHYSICIAN SERVICES** | |
| Physician Office Visits | $150 |
| Specialist Office Visits | $300 |
| Preventive Services | $25 |
| Baby Care | $300 |
| **OTHER SERVICES** | |
| Durable Medical Equipment | $300 |
| Nursing Facility | $250 / day |
| Physical Therapy | $100 / session |

Mrs. Sheridan emphasizes that much of the data is "Protected Health Information" under the Health Information Portability and Accountability Act (HIPAA) and must be appropriately protected. She suggests you see http://www.hipaa.com/hipaa-protected-health-information-what-does-phi-include/.