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Design and Pricing of Tiered Network Health Plans

by Peter Horman



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Pricing actuaries working at an HMO are often asked how to save money on a health plan without decreasing member benefits. Over the years, answers have included the introduction of HMOs themselves, mail order pharmacy and disease management. Another tool many HMOs and insurers have considered is the use of tiered network health plans (TNHPs). TNHPs subdivide network providers based on cost effectiveness and quality rankings to identify preferred providers, those who have lower cost without sacrificing quality. Members become consumers, choosing to either pay extra to receive care from non-preferred providers or shift to preferred providers.

TNHPs help keep the total cost down, and members are able to maintain existing benefit levels. As a result, policy makers are taking notice and implementing TNHP plans for both small group reform and state employee health plans. For example, the state of New Hampshire is requiring insurers in its small group market to offer a tiered hospital product called HealthFirst. New Hampshire's goal is to maintain the HealthFirst premiums at 10 percent of the state's median wage.

In order for an HMO to design a tiered plan that meets employers' or regulators' goals, they need a solid design, accurate pricing and must avoid potential pitfalls. This article will detail design, pricing and other key issues actuaries need to be aware of before implementing a TNHP.

Design and Tiering

In order to design a TNHP, insurers must first start with an existing plan; then select a provider category to tier; next tier providers in the chosen category on cost and quality measures; and finally add additional cost share to providers not meeting desired standards. The TNHP design possibilities are endless in that each HMO will set its own structure based on system capabilities, size and location of network, contracts, quality standards and marketing needs.

A provider category that would be a good candidate for a tiered structure must control a significant amount of claims volume in order to result in significant savings on a TNHP. Common provider types

to tier include primary care physicians (PCPs), specialists and hospitals. Claims controlled by the provider include those they performed and those they may have triggered by their care decisions. For, instance a PCP indirectly has control over decisions made by a referred specialist, because that PCP has the ability to refer to a different specialist. As such, identifying the claims providers control is more challenging than simply identifying the services they perform, for instance:

- **PCPs:** Control all costs (because they prescribe, refer and admit);
- **Specialists:** Control all claims related to the given specialty;
- **Hospitals:** Control inpatient and outpatient facility charges.

However, with experience data and some clinical input it is possible to identify the claims any selected provider category controls.

Segmenting providers into tiers uses rankings developed from experts within the HMO including, but not limited to, actuarial, clinical and contracting staff. Rankings are based on the two important measures: cost effectiveness and quality. In this article, cost effectiveness refers to the balance of per unit cost and efficiency of care on all claims in control of the provider. For example, a reasonable cost effectiveness measure to tier groups of PCPs could be risk adjusted average per member per month claims of each group of PCPs patients. The clinical staff will decide on quality measures, and it may rely on a combination of internal and external rankings.

Once determined, the rankings are used to distinguish between providers in order to create a preferred tier and a non-preferred tier (providers subject to additional member cost sharing). One method of creating the tiers is to limit preferred providers to those meeting a quality standard. Next, for passing providers, draw a line at a low cost percentile, or choose the lowest cost provider in a designated region.

Regardless of the tiering strategy, two pricing variables are created from the process:

- **Claims under the control of non-preferred providers = N%** = the percent of total claims

controlled by providers segmented to the tier receiving additional cost share. Again, claims controlled by the providers include both those they performed and those that may have resulted from their care decisions.

- **Cost differential between tier providers = P%** = one minus ratio of average preferred cost per unit to average non-preferred cost per unit. A unit could be per member, per user or per admit, but the cost differential must cover all cost in control of the provider category.

These statistics are straightforward to develop because they are a direct result of the tiering process. Once the design process is complete, the plan pricing stage is next.

TNHP Pricing Formula

Although the TNHP savings formula is fairly simple, it requires a strong actuarial skill set to estimate the final two variables. The first variable is the impact of the additional member liability (copays, deductible, coinsurance, etc.) on non-preferred providers:

- **Member liability differential = M%** = change in actuarial value of benefits of non-preferred providers due to the additional member liability. This should be calculated as a percent of claims controlled.

As with any other benefit change, actuaries can use cost models, claims probability distributions, re-adjudication methods and claims experience to determine actuarial values related to the change in the member liability.

The shift assumption, or the percentage of non-preferred users moving to the preferred providers, is the most difficult variable to estimate:

- **Shift assumption = Shift** = the consumerism impact of a TNHP, which is the assumed percentage of non-preferred users reacting to increased member liability by switching to preferred providers.

In practice, when introducing TNHPs, an actuary will have very little information to develop a reasonable shift assumption. After introducing the TNHP savings formula, this article will present a method for estimating shift.

A reasonable estimate of TNHP plan savings can be calculated using the three variables previously developed and the shift assumptions (still unknown). The formula for the TNHP savings, as compared to a traditional plan, which is created by adding extra cost share to a non-preferred tier of providers, is:

- **TNHP savings formula = N % * [M % + Shift x (P % - M %)],**

which is the percent of total claims controlled by non-preferred providers (N%) multiplied by the additional member liability (M%) plus the shifted users (Shift) differential between tier cost savings (P%) and member liability. This is the algebraic equivalent of non-shifted claims times extra member liability savings plus shifted claims times provider savings.

A simple and intuitive result of this formula is that a TNHP's savings is somewhere between the impact of the extra member liability and the provider cost differential. In fact, the shift assumption determines where the true savings lies between extra member liability and provider cost savings. An important result of the formula is that when the level of additional cost sharing equals the provider differential (later referred to as equilibrium cost share level or just Equilibrium), the shift variable is no longer required to estimate TNHP savings. With this idea of an equilibrium cost share level, additional constraints and available data points can be used to estimate the shift assumption of the TNHP formula.

Developing the TNHP Shift Assumption

Actuaries, as mathematicians, know to rely on the underlying constraints of a problem to develop a reasonable solution. In the absence of any other information on shift, it is helpful to consider three major constraints:

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Before implementing a TNHP, it is key to understand how price varies by rating region, and any regulation impacting rate development.

1. Demand curve constraint: Shift will increase as the member liability differential increases;
2. Maximum shift constraint: At most, all non-preferred users can shift to preferred providers, which presents a limit to overall movement;
3. Limited network pricing constraint: Most TNHPs should never be priced at a level lower than that of a limited network plan composed of only the preferred provider tier (i.e., plan requiring members to access only preferred providers).

The first constraint is from economic theory; the second is obvious; and the third is more of a general rule. The limited network pricing constraint holds for standard TNHPs, which are those that contain a low cost preferred provider tier, alongside a much higher cost non-preferred tier. In this case, a TNHP can be thought of as a limited network plan plus an option to use an extended network at a fee. As this option represents added value, a fair price on it should never be less than zero. A method to force the TNHP formula to meet this constraint is to assume 100 percent shift whenever member liability differential exceeds the provider cost differential between tiers. Thus the equilibrium member cost share level (Equilibrium), found where $M\% = P\%$, is a valuable point in a shift estimate. For exotic TNHPs, possibly ones designed strictly on quality rankings where the preferred tier could be more costly than the non-preferred tier, the third constraint may not be reasonable.

From the constraints, along with the initial condition (assuming no shift), one can limit the reasonable functions of the relationship between additional member liability and the propensity to shift. To build a reasonable function, first construct a line from two points. For example, two points subject to constraints are [No Liability Differential, 0% Shift] and [Equilibrium, 100% Shift]. The line follows:

- Shift Line: $Y = mX + b = [100\% / \text{Equilibrium}] \times \text{Member Liability Differential}$, where Shift is 100% for member liability greater than equilibrium.
- Y-intercept = $b = 0\%$, i.e., no shift is expected without a cost share differential.
- Slope = $m = 100\% / \text{Equilibrium}$, alternatively for a more aggressive shift increase the slope,

that is, assume that 100% shift occurs at a member liability less than equilibrium.

- X variable = Member Liability Differential.

This shift line is a starting point that can be refined with available or observed data points. Prior to plan implementation, data points may be found from member surveys, geographical analysis or competitor pricing. After plan implementation, data points should be developed comparing pre- and post-implementation provider utilization. The graph below shows the initial shift line as well as a curve built around that line and data points. Although hypothetical, a similar graph could be used for hospital tiered products, where the member liability differential could represent added copay per hospital admit.

With a reasonable shift function specific to a given TNHP, an actuary can estimate shift for any additional cost share. This function along with the TNHP formula will allow for reasonably accurate, fair and consistent pricing. Once the pricing estimate is in place, the actuary should identify possible obstacles to success before implementation.

TNHP Pitfalls

As with any new plan, the HMO should consider the possible pitfalls of implementing a TNHP. Obstacles could arise from regulation, provider reaction, inability to maintain low cost providers or antiselection. Two major issues are pricing dependence on area and provider backlash.

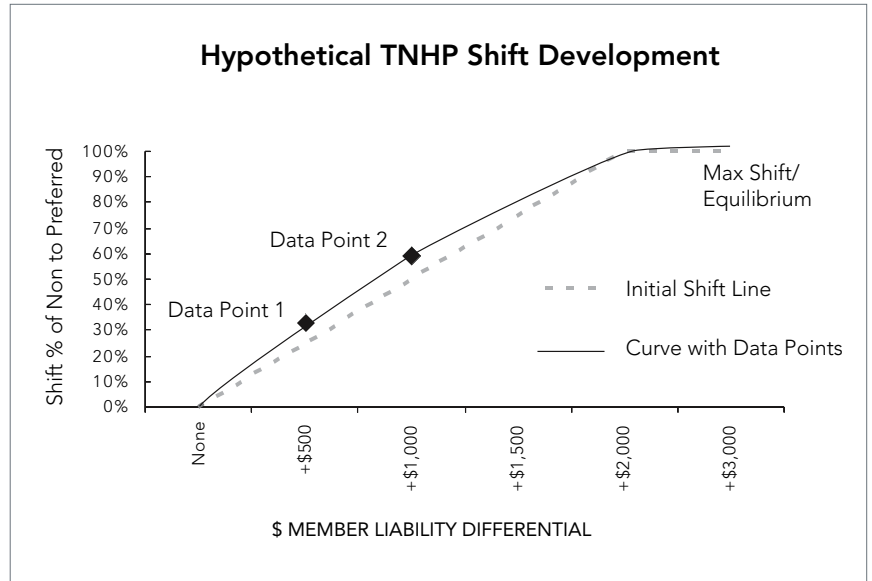
First, TNHPs are highly area specific. For instance, an HMO may have a metropolitan region and a rural region. The metropolitan area may have multiple hospitals and a natural ranking of providers. However, rural areas may have only one provider option, so tiering is impossible. Before implementing a TNHP, it is key to understand how price varies by rating region, and any regulation impacting rate development.

Another important pitfall is the provider backlash in response to being tiered. Providers may not appreciate quality rankings, especially so if

they are not placed in the preferred tier. For example, the Massachusetts Medical Society recently filed suit against the Massachusetts Group Insurance Commission (GIC) over rankings in their TNHP. Even as the suit is pending, the medical society is actively supporting physicians to appeal their tier designations. These reactions demonstrate how sensitive providers are to quality rankings. As a general rule, it is critical to ensure sound clinical evidence and methodology are used when making any statements about provider quality.

Closing Thoughts

Tiered network health plans are a valuable component of a health plan's product portfolio. Accurate pricing and design of these plans requires considerable knowledge of providers, medical quality and actuarial pricing. If pitfalls are avoided, the end result is a plan that lowers employers' costs and rewards members who choose low cost yet high quality providers. These savings are likely to encourage employers and policy makers to pressure HMOs to expand their tiered product offerings. Ultimately, TNHPs will have lasting success if they drive consumers to expect providers to lower cost and raise quality. ■



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