Module 2: Physician Agency and Treatment Decisions

Agency and capitated payments

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What are "capitated" payments?

- Payments for a person or group
- Set amount intended to cover all expenses for a given person/group
- If expenses exceed that amount, the providers lose money
- If expenses fall below that amount, the providers make a profit

Examples of capitated payments

- No "fully capitated" payments in the U.S.
- Closest in the U.S. is an "accountable care organization"

- More common in UK, Canada, and other public systems

- We'll discuss more in the next section of this module

Incentives

Thinking about FFS versus capitated payments...

- What are the incentives in a FFS model if the goal is to make more money?
- Are those incentives different in a capitated payment model? How?

Agency with capitated payments

- Physician receives fixed ("capitated") amount for each patient, R, along with some price per unit of service, p_s

- Physician therefore paid $R + (p_s - c)x$ for each patient

- Number of patients for each physician expressed as a positive function of the net benefit offered, $n(NB)$, where $NB = B(x) - p_d x$. Here, we assume that the insurer sets p_d and p_s separately (the demand and supply price, respectively).

- Physician again aims to maximize profits, $\pi = n(NB)\left[R + (p_s - c)x\right]$.

Solution with capitated payments

Maximizing the profit function yields:
$$n'(NB)(B'(x) - p_d)\left[R + (p_s - c)x\right] + n(NB)(p_s - c) = 0.$$

Rearranging terms and multiplying both sides by $\frac{1}{NB}$, we get:
$$\frac{B'(x) - p_d}{NB} \frac{R + (p_s - c)x}{p_s - c} = -\frac{1}{\varepsilon_{n,NB}}$$

1. What happens for $R = 0$?

2. What about $R > 0$, assuming $p_s < c$?

In-class problem: Agency and Capitated Payments

1. Solve for the patient's optimal amount of care (if they could choose the amount on their own).
2. Write out the physician's profit function based on the information provided.
3. Find the physician's optimal x if $R = 0$ and $p_s - c = 1$.
4. Find the physician's optimal x if $R = 1$ and $p_s - c = 1$. How does this differ from part (3)?
5. Find the physician's optimal x if $R = 1$ and $p_s - c = 0$.

Takeaways

Excessive treatment may arise because physicians can choose a level of care, and this choice may derive from incentives that are not perfectly aligned with those of the patients. From this section, you should be able to:

1. Set up and solve the physician's optimization problem and compare the solution to that of the patient's optimum.
2. Show mathematically how the design of an insurance contract (namely, capitated payments versus fee-for-service payments) may determine the extent to which physicians overprovide care.