

ASSIGNMENT: MEASURING COSTS

1. For each situation, what type of cost is being measured?

a. A patient must pay for a taxi ride to the clinic.

[Direct non-medical cost](#)

b. A patient receives an influenza vaccination at the pharmacy.

[Direct medical cost](#)

c. A patient is fatigued because of chemotherapy treatments.

[Intangible cost](#)

d. An adult daughter misses work to take care of her mother who recently had hip replacement surgery.

[Indirect cost](#)

2. A new pharmaceutical product has just been developed for patients who are treatment-resistant to the current antipsychotic products on the market. Based on the following perspectives and objectives, what costs should be measured?

a. An inpatient mental health hospital wants to estimate the effect of the new product on its budget.

[Institutional perspective: Direct medical cost](#)

[E.g. medication monitoring, cost and administration, patient counseling and consultation](#)

b. The state Medicaid program wants to estimate the effect of the new product on its budget.

[Payer perspective: Direct medical cost](#)

[E.g. Hospitalization, medication cost, patient consultation, nursing services](#)

c. The governor of your state wants to estimate the effect of the new product on the state budget.

[Societal perspective: Direct medical cost, Indirect cost and Direct non-medical cost.](#)

[E.g. direct medical cost- medication monitoring, cost and administration, patient counseling and consultation](#)

[Indirect cost- loss of productivity of patient, loss of productivity of unpaid caregiver](#)

[Direct non-medical cost- housing and travel costs](#)

3. Based on the following costs from a retrospective analysis, what is the 2013 value for the three alternatives using a medical consumer price index (MCPI) inflation rate of 3.5% per year?

ALTERNATIVE 1:

Year 2013 (0 years in the past): $\$20,000 \times (1.035)^0 = \$20,000$

Year 2012 (1 year in the past): $\$30,000 \times (1.035)^1 = \$31,050$

Year 2011 (2 years in the past): $\$30,000 \times (1.035)^2 = \$32,137$

Year 2010 (3 years in the past): $\$10,000 \times (1.035)^3 = \$11,087$

Total	\$94,274

ALTERNATIVE 2:

Year 2013 (0 years in the past): $\$25,000 \times (1.035)^0 = \$25,000$

Year 2012 (1 year in the past): $\$25,000 \times (1.035)^1 = \$25,875$

Year 2011 (2 years in the past): $\$15,000 \times (1.035)^2 = \$26,781$

Year 2010 (3 years in the past): $\$15,000 \times (1.035)^3 = \$27,718$

Total -----
\$105,374

ALTERNATIVE 3:

Year 2013 (0 years in the past): $\$20,000 \times (1.035)^0 = \$20,000$

Year 2012 (1 year in the past) : $\$20,000 \times (1.035)^1 = \$20,700$

Year 2011 (2 years in the past): $\$20,000 \times (1.035)^2 = \$21,424$

Year 2010 (3 years in the past): $\$20,000 \times (1.035)^3 = \$22,174$

Total -----
\$ 84,298

Year	2010	2011	2012	2013	2013 Cost in dollars
Alternative 1	\$11,087	\$32,137	\$31,050	\$20,000	\$94,274
Alternative 2	\$27,718	\$26,781	\$25,875	\$25,000	\$105,374
Alternative 3	\$22,174	\$21,424	\$20,700	\$20,000	\$84,298

4. Based on a **3% discount rate**, what is the **2013 present value** of the costs of the three alternatives estimated to accrue over the next 4 years? Assume that costs are assessed (accrued) at the beginning of the year.

ALTERNATIVE 1:

Year 2013 (0 years in the future): $\$10,000 \div (1.03)^0 = \$10,000$

Year 2014 (1 year in the future): $\$30,000 \div (1.03)^1 = \$29,126$

Year 2015 (2 years in the future): $\$30,000 \div (1.03)^2 = \$28,278$

Year 2016 (3 years in the future): $\$20,000 \div (1.03)^3 = \$18,303$

Total -----
\$85,707

ALTERNATIVE 2:

Year 2013(0 years in the future): $\$15,000 \div (1.03)^0 = \$15,000$

Year 2014 (1 year in the future): $\$15,000 \div (1.03)^1 = \$14,563$

Year 2015 (2 years in the future): $\$25,000 \div (1.03)^2 = \$23,565$

Year 2016 (3 years in the future): $\$25,000 \div (1.03)^3 = \$22,878$

Total -----
\$76,006

ALTERNATIVE 3:

Year 2013(0 years in the future): $\$20,000 \div (1.03)^0 = \$20,000$

Year 2014 (1 year in the future): $\$20,000 \div (1.03)^1 = \$19,417$

Year 2015 (2 years in the future): $\$20,000 \div (1.03)^2 = \$18,852$

Year 2016 (3 years in the future): $\$20,000 \div (1.03)^3 = \$18,303$

Total

\$76,572

Year	2013	2014	2015	2016	2013 Present value in dollars
Alternative 1	\$10,000	\$29,126	\$28,278	\$18,303	\$85,707
Alternative 2	\$15,000	\$14,563	\$23,565	\$22,878	\$76.006
Alternative 3	\$20,000	\$19,417	\$18,852	\$18,303	\$76,572