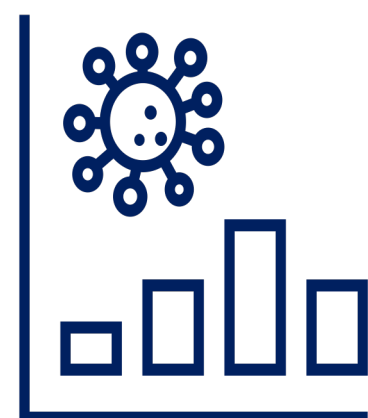


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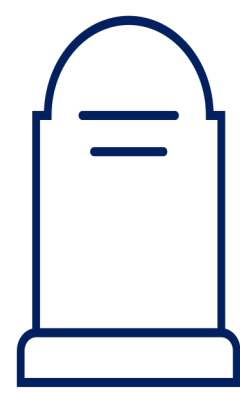
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BACKGROUND AND AIM

- >4 million new cancer cases (incidence 294/100,000) are diagnosed in China each year, with a rising prevalence due to an aging population and better survival
- >2 million cancer deaths (mortality 170/100,000) occurred in China each year
- The most frequent types are lung cancer (20.4%), colorectal cancer (10.0%), and gastric cancer (9.8%); lung, liver, and stomach cancers are the 3 most deadly cancers
- As part of its efforts to reduce the cancer burden, the Chinese government has invested in cancer screening programs as well as cancer education



>4 million
new cases in 2016



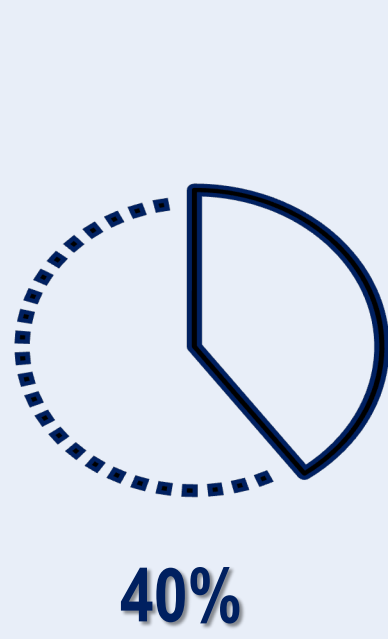
>2 million
cancer deaths in 2016

METHODS

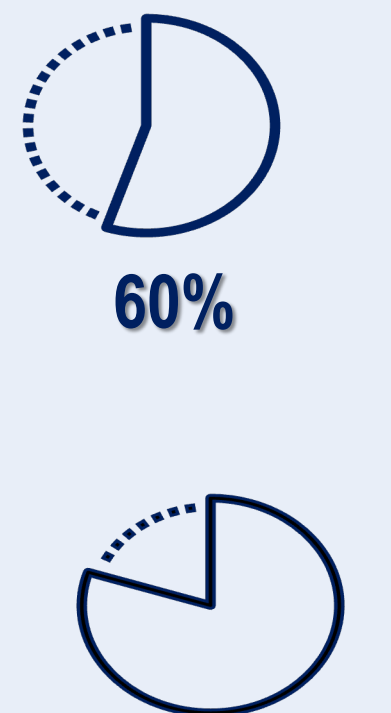
Budget impact model

- Overview:** the model assessed the economic impact of establishing a county-level cancer prevention and care center in China from a China Healthcare Security's (CHS), societal and regional hospital's perspectives
- Compared strategies:**

% of types of cancers covered at the county level hospital

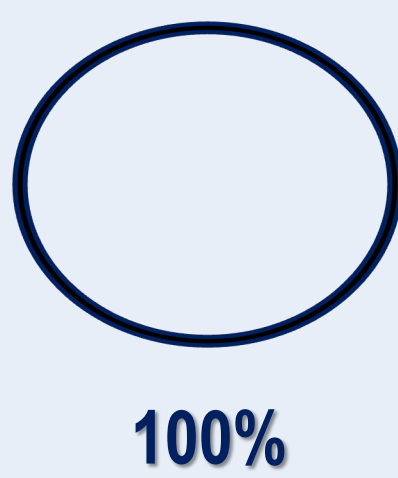
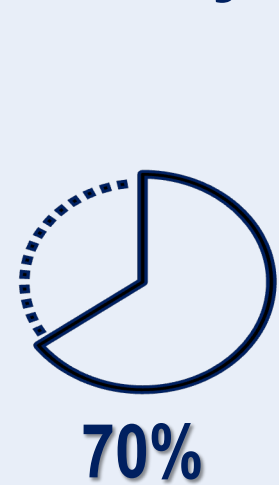


Strategy 1
Status quo (i.e., traveling to major cities for cancer care)



3-years
80%

Strategy 2
Building cancer centers by cancer type (covered 80% of cancer over three years)



Strategy 3
Centralized cancer prevention and care center (all cancer)

- Total healthcare costs associated with cancer were calculated based on:**
 - Epidemiology of top 20 prevalent cancer in China
 - Diagnosis, treatment and surgery costs of cancer
- Societal costs:** patients' and care takers' travel and lost labor time costs
- Hospital cost-performance ratio (CPR=net profit/costs)** was calculated by net profit divided by costs associated with building county-level cancer prevention and care center(s):



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1. Cao, M., Li, H., Sun, D., He, S., Yan, X., Yang, F., ... & Chen, W. (2022). Current cancer burden in China: epidemiology, etiology, and prevention. *Cancer biology & medicine*, 19(8), 1121.
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METHODS (CON.)

- Model inputs**
 - Epidemiology inputs from published literature were used to estimate the number of patients with cancer and the number of newly diagnosed patients with cancer
 - The treatment and surgery costs of cancer was based on published literature
 - Establishment costs for cancer center(s) and hospital profit were based on expert opinion and market research
 - Patients' and care takers' travel and lost labor time costs was based on published literature and expert opinion

RESULTS

CHS's perspective

- In a county with 500,000 population in China, compared to status quo (**Fig 1**)
 - Establishing a centralized cancer prevention and care center resulted in the lowest total health budget (¥1,304 vs 1,212 million [M], $\Delta = ¥9.2M$)
 - Building several cancer centers by cancer type also reduced total health budget (¥1,304 vs 1,243M, $\Delta = ¥6.1M$)



Figure 1. Total healthcare costs from CHS perspective

Societal perspective

- Compared to status quo (**Fig 2**)
 - Patients will pay for the least societal costs by establishing a centralized cancer prevention and care center at county level (¥426 vs 985, $\Delta = ¥559$)
 - Building several cancer centers by cancer type also reduced the social costs for patients (¥613 vs 985, $\Delta = ¥372$)

Hospital's perspective

- Compared to the status quo (**Fig 3**)
 - Establishing a centralized cancer prevention and care center generated the highest hospital profit (3-year average $\Delta = ¥60.1M$)
 - Building several cancer centers by cancer type also increased hospital profit ($\Delta = ¥38.3M$) than the status quo
 - However, it is less effective than building a centralized cancer center (CPR: 7.7 vs 22.3)

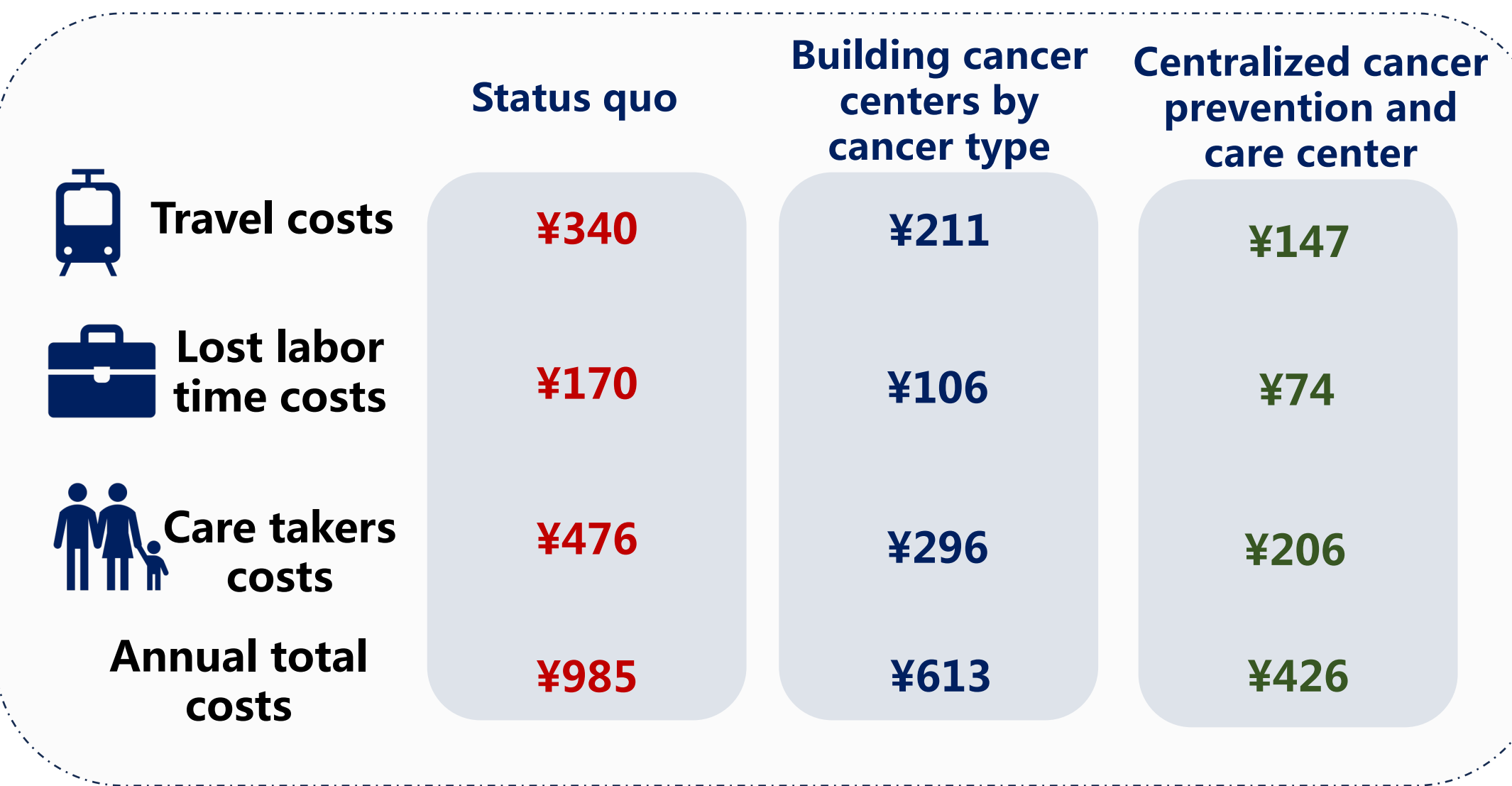


Figure 2. Societal costs per patients per year

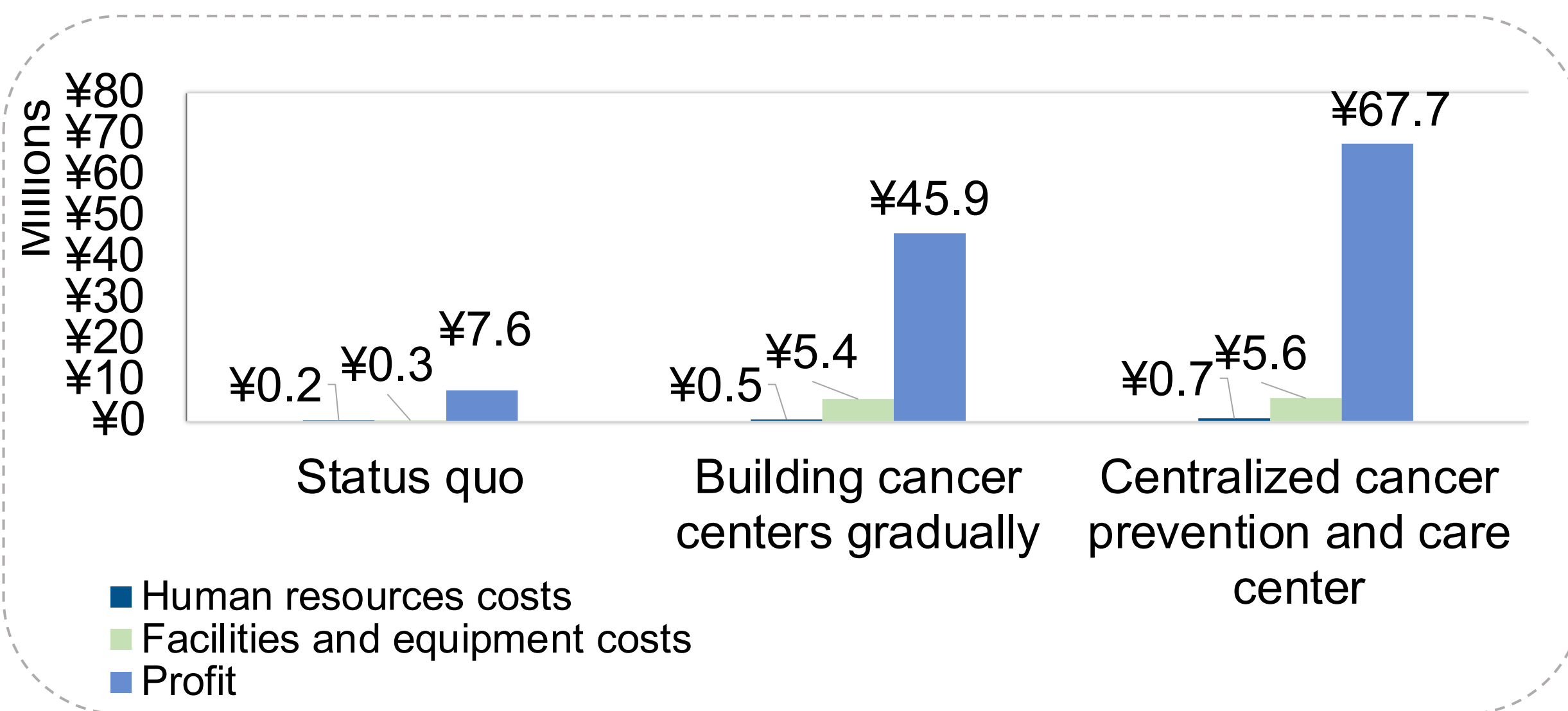


Figure 3. Hospital costs and profit

CONCLUSION

The establishment of a centralized cancer prevention and care center at county level provides an effective approach with a decrease in the healthcare budget from CHS's perspective and an increase in profit from a regional hospital's perspective. These findings have implications for improved cancer care and healthcare resource allocation in China.