

Micro-Elimination of Chronic Hepatitis C in Switzerland: Modelling the Swiss Hepatitis Strategy Goals in Urban and Rural Regions

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INTRODUCTION

Direct-acting anti-viral agents have revolutionized hepatitis C treatment. In 2014, the Swiss Hepatitis Strategy was developed with the goal to **eliminate Hepatitis C virus (HCV) infection** and the associated liver related morbidity and mortality **by 2030**¹. Though numerous national studies and assessments have identified a relatively low prevalence rate of 0.7% in the country². Little has been done to identify the epidemiology of HCV on the regional, or micro, level.

More so, approximately 4,000 people have died in connection with HCV in Switzerland, about five times as many deaths as HIV or Hepatitis B virus (HBV)².

Thus, there is a **growing need to identify HCV management strategies** in the Switzerland. Developing possible micro-elimination scenarios, breaking down national elimination goals into individual population segments³, enable policy makers to understand current disease landscapes on a hospital based, or regional level.

AIM

This study aimed to identify scenarios to achieve the Swiss Hepatitis Strategy by 2030 in an urban and a more rural region in Switzerland.

METHODS

Two Excel-based Markov disease burden models, comprehensively described before⁴, grounded in hospital and regional specific data, were developed to forecast the current and future prevalence of HCV infection by fibrosis stage and liver disease stage through 2030.

Two scenarios were developed to evaluate the disease burden in Geneva and St. Gallen:

- A Base 2016 scenario, representing the current standard of care in each Canton,
- A second potential scenario to achieve the Swiss Hepatitis Strategy goals.

RESULTS

In 2016, the estimated viremic prevalence in St. Gallen was 0.5% corresponding to 2,800 cases.

In Geneva, the estimated prevalence was slightly higher, with an estimated 0.7% viremic prevalence, or 3,300 cases in the same year.

In order to achieve the Swiss Hepatitis Strategy goals of a **30% reduction** in new infections, total viremic infections, liver transplants, and HCC cases by 2020 and a 90% reduction by 2030, both regions will need to **increase the annual number of treated and diagnosed patients through 2030**.

In St. Gallen, an up-front investment to treat 430 patients annually by 2020 (compared with 110 annually in 2016), would be necessary, to achieve the 2020 goals. After 2020, treatment could be reduced to ~150 patients annually through 2030. The number of patients diagnosed, however, would need to be sustained at 130 annually after 2020 (compared with 90 in 2016).

In Geneva, 235 patients need to be treated with 140 diagnosed annually between 2019 and 2030 to achieve both 2020 and 2030 goals (compared with 190 treated and 140 diagnosed in 2016).

Figure 1. Distribution of viremic infections by disease stage in the cantons of St. Gallen and Geneva from 1950-2030

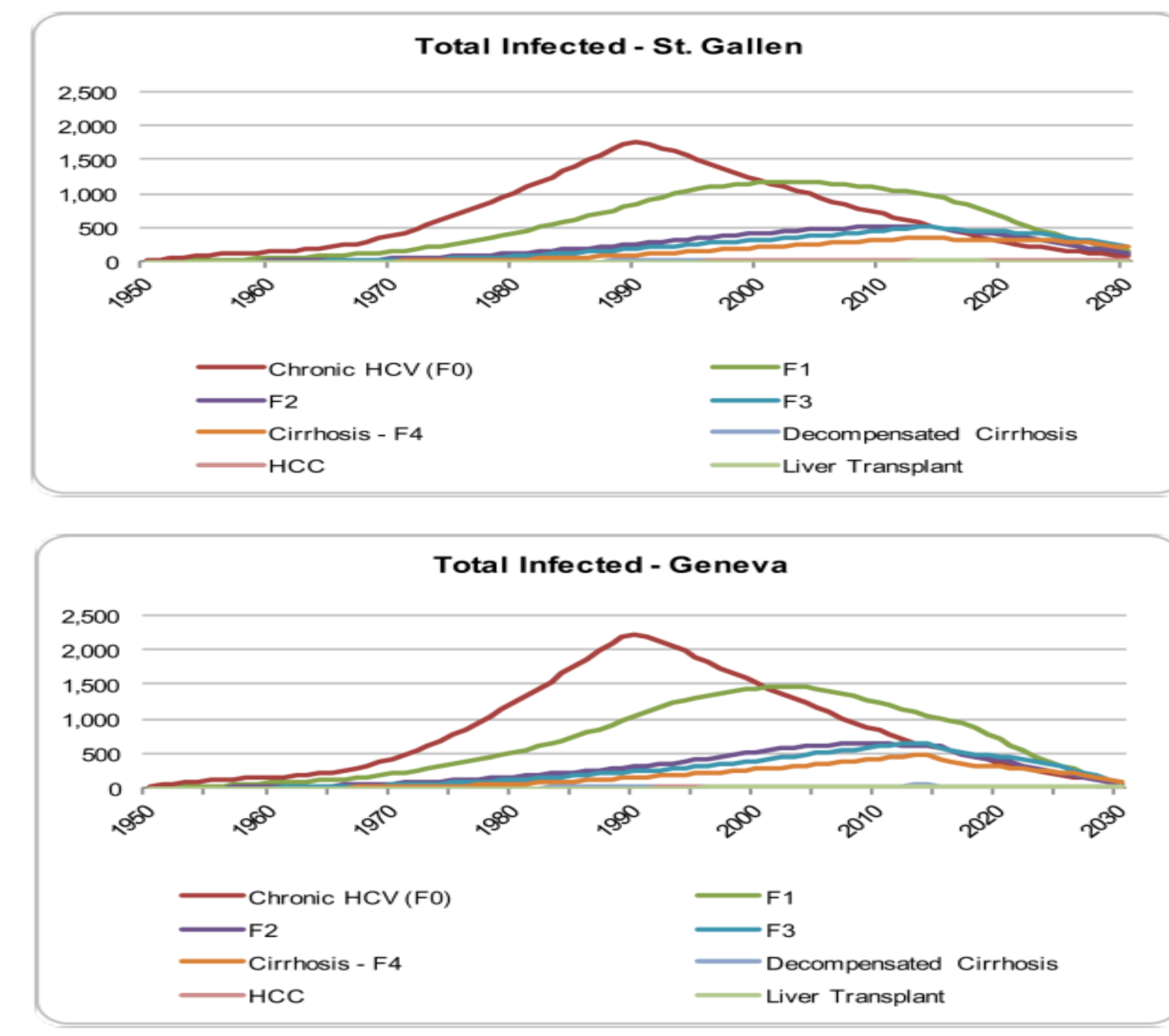


Figure 2. Total viremic infections, liver related morbidity and mortality by scenario for the cantons of St. Gallen and Geneva. These values were forecasted from 2015-2030.

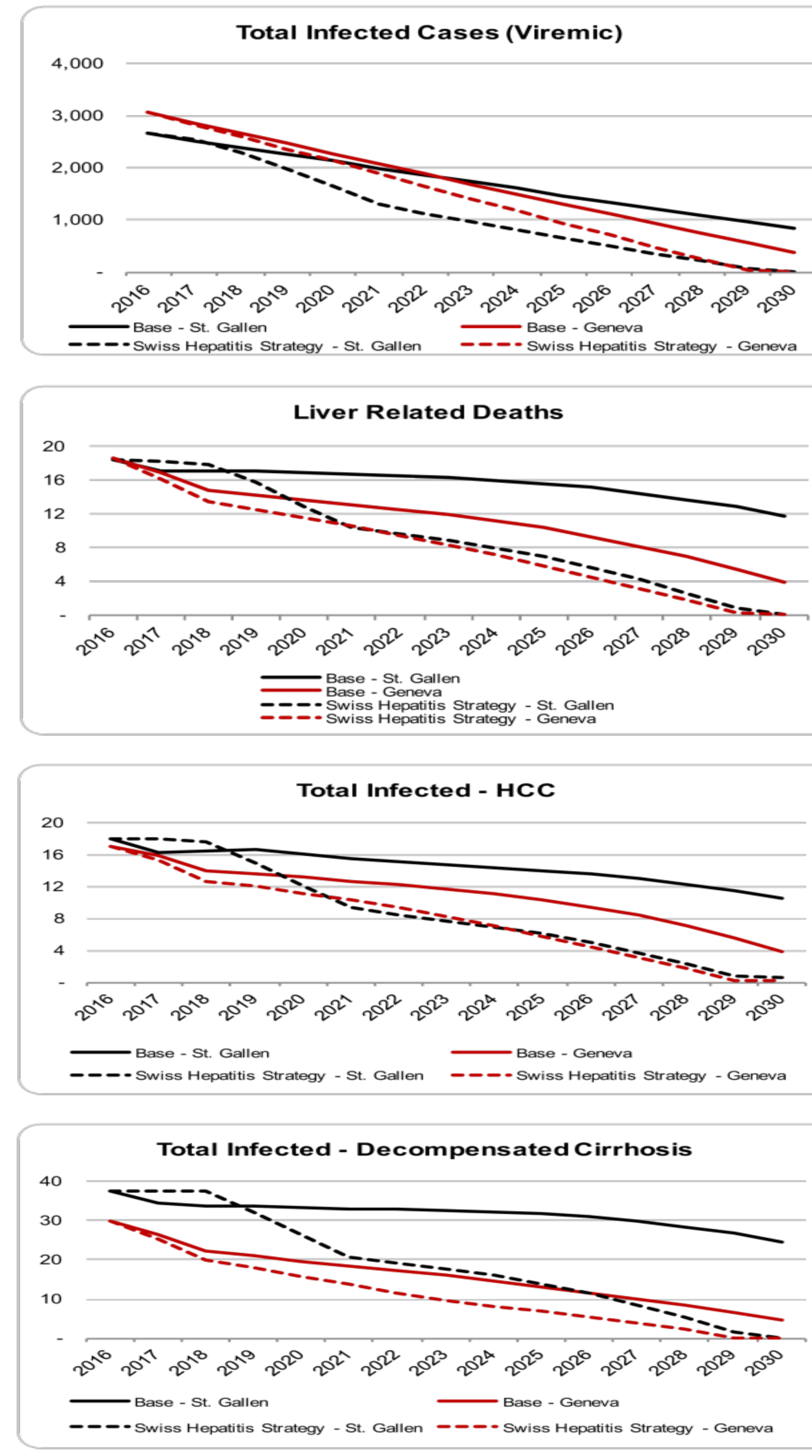
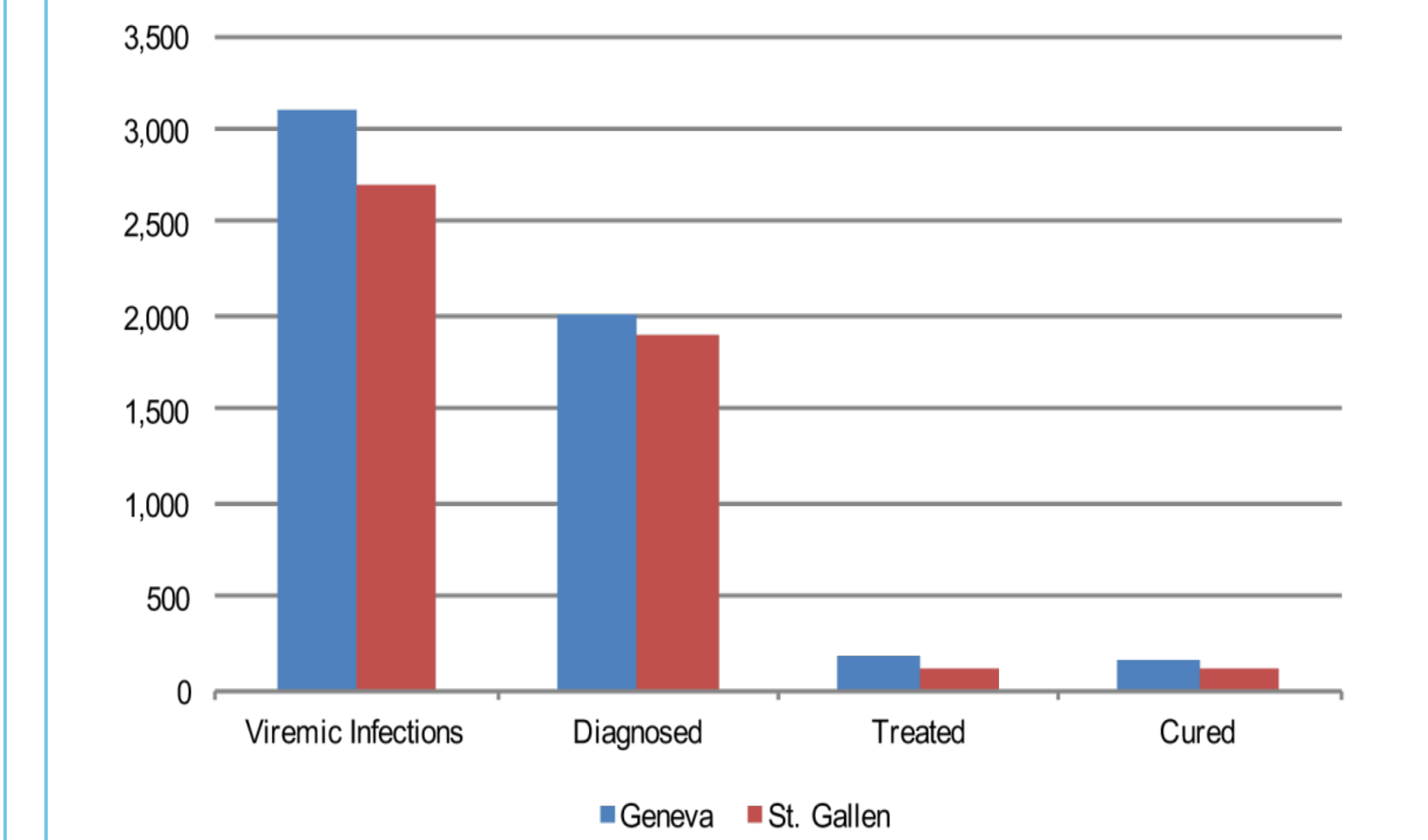


Figure 3. The hepatitis C cascade of care, including total viremic infections, diagnosed, treated and cured, in the cantons of St. Gallen and Geneva for year 2016



CONCLUSIONS

Elimination of chronic HCV infection in Western and Eastern Switzerland by 2030 is possible, but not with the current HCV detection or treatment rate. **Intensified HCV screening and increased DAA access, also for core-group patients,** are necessary to meet the Swiss hepatitis strategy elimination goals over the next fifteen years.

REFERENCES

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