Mobile COVID-19 Testing in Vienna During Flu Season

A geospatial analysis

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Vienna’s COVID-19 cases are skyrocketing

Global pandemic affects countries & people worldwide, Vienna included

Unemployment rises and global economies are shrinking rapidly

Vienna’s government wants to increase testing rates to be able to react to changes

Stationary testing tents or buildings have long reached maximum capacity

The city of Vienna has introduced mobile testing, where symptomatic patients are being tested at home. This remains integral for managing the pandemic.
How can mobile testing be optimized?

The aim of this analysis is to:

(1) Analyze how many tests can be conducted by mobile testing teams using current equipment and fleet

(2) Give recommendations on how to improve the current situation and increase performance
But first, data...

(1) Data collection
Data has been collected using official government information and information from paramedic organizations such as the Red Cross.

(2) Certain limitations in data

Problem 1: no official location data for actual testing locations
Solution: creating random spread, representative test-data
Assumption: Testing is equally spread across Vienna

Problem 2: no official data on how long one test at a patient’s location takes
Solution: talking to paramedics and getting first-hand information
Assumption: Testing itself takes 15 minutes

(3) Methodology
Designing a realistic vehicle routing problem in ArcGIS using the given information and therefore computing a realistic number of tests that can be conducted using current infrastructure and equipment.
Main Findings

(1) 1,000 tests per day could be achieved easily with even some capacity left (it is possible using only 27 out of 30 vans)

(2) Information from paramedics:

“putting on and removing protective equipment takes a lot of time”

### Implementation Exploration

<table>
<thead>
<tr>
<th>(1) Switch to gargle tests whenever possible</th>
<th>(2) Introducing an app/website for ease of access</th>
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<tbody>
<tr>
<td><strong>Benefits:</strong></td>
<td><strong>Benefits:</strong></td>
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<tr>
<td>- Reduces time paramedics spend on taking</td>
<td>- Find testing options &amp; book appointments online</td>
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<tr>
<td>on and off protective equipment</td>
<td>based on several criteria</td>
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<td>- Leads to more tests that can be conducted</td>
<td>- Web Triage: Currently done by health-hotline</td>
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<td>per day</td>
<td>operators, could be performed online or in the</td>
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<td></td>
<td>app by answering specific questions (e.g. Self</td>
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<td>health assessment)</td>
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<td>- Creating an app/mobile version increases</td>
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<td>acceptance and enhances user experience</td>
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<tr>
<td><strong>How?</strong></td>
<td><strong>How?</strong></td>
</tr>
<tr>
<td>✓ Health-hotline operators conduct a first</td>
<td>✓ Extending the functionalities of the currently</td>
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<tr>
<td>analysis if a gargle test is appropriate</td>
<td>used „Stopp Corona“ App</td>
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Implementation Exploration

(3) Build more Grassroots Support

Benefits:

- For a community project to be successful: bottom-up solutions are needed

- Through involvement of the community further spread could be avoided, which is especially important in light of the ongoing flu season, when there is an increase in the number of symptomatic patients

How?

- The previously used message of StayAtHome should be reinforced.
- Social media campaign (similar to „Breast Cancer Runs“) could be initiated, especially targeting younger people (age group 25-34 in which COVID19 rates are rapidly growing)
- Slogan like #IStayHomeFor to reinforce responsibility of caring for others who are vulnerable, even if you yourself might not be in such a grave danger.
Questions?

For further details feel free to contact us!