Hyperlocal Support of Vaccine Uptake in South Africa

December 2021
Hyperlocal Support of Vaccine Uptake: Overview
We aim to bring local understanding of uptake barriers across South Africa

Goals

A deeper understanding of how the 3C’s occur locally and across entire countries to inform broad Risk Communication and Community Engagement (RCCE) efforts.

A detailed mapping of J&J’s consumer segments and media consumption patterns across the country to close the gap between data and action.

An interactive tool to equip implementors with hyperlocal data to overcome barriers to vaccine uptake faster.

Outputs

Comprehensive reports containing overviews and detailed assessments of hyperlocal patterns of vaccine confidence, complacency, convenience, consumer segmentation, and media consumption patterns across the entire country.

DATAfraym – an interactive web-based dashboard – access, for custom data exploration, analysis, and exports, with mapping available at a 1 square kilometer level of granularity.

Complete datasets available regarding vaccine confidence, complacency, convenience, consumer segmentation, and media consumption patterns across the entire country, at a 1 square kilometer level of granularity.
Paired with WHO’s 3C Framework, we’ve mapped J&J’s Consumer Segments to identify where vaccine uptake challenges are likely to occur.

The 3C’s

**Confidence**: High confidence = More likely to take a Vx

**Convenience**: High convenience = More likely to take a Vx

**Complacency**: High complacency = Less likely to take a Vx

**Consumer Segmentation**

Different segments of people have different motivations and reasons to not get a COVID-19 vaccine (barriers).
Data and Methods

We used geospatial machine learning methods to create local understanding of vaccination uptake barriers across the entire country down to the square kilometer.

Data

This report leverages the 2021 Fraym South Africa field survey (May 2021)

Health facilities in sub-Saharan Africa were sourced from the World Health Organization.¹

Walking and driving time to health facilities were sourced from the Malaria Atlas Project.²

Methods

Machine Learning for Hyperlocal Mapping: The localized maps seen in this report were produced using the proprietary software FUSEfraym™. This software uses artificial intelligence and machine learning (AI/ML) to weave together survey data with satellite imagery and geostatistical datasets.

Note 1: This master list of health facilities was developed from a variety of government and non-government sources from 50 countries in sub-Saharan Africa, accessible here: https://data.humdata.org/dataset/health-facilities-in-sub-saharan-africa

Note 2: Least-cost distance compensates for travel costs, such as slope and terrain, accessible here: https://malariaatlas.org/research-project/accessibility-to-healthcare/
Use this Document as Inspiration

Paired with WHO’s 3C Framework, we’ve mapped J&J’s Consumer Segments to identify where vaccine uptake challenges are likely to occur.

Potential ways to use this analysis:

- Concentrate communication campaigns and media spending in specific geographic areas
- Target specific messages to niche audiences in prioritized geographies
- Optimize vaccine distribution
- Service & Product Delivery Planning

3 Levels of Views

- **National**
  - Patterns at the country level
- **Regional**
  - Patterns across counties
- **Local**
  - Patterns at the Sq. Km
Ex. 1: Reaching ‘Vaccine Skeptics’ Near Cape Town

How do we reach those near Cape Town who are worried about COVID but have vaccine concerns?

**WHO are we looking for?**

**Summary**

- **Convinced of COVID threat, but scepticism around vaccine safety and efficacy inhibits perceived benefit and quick uptake.**

- **% of population**: 25%

- **Likelihood to take a COVID-19 vaccine**: Moderately low

- **Speed of uptake**: Wait at least 6-12 months

- **Perceived ease of getting the vaccine**: Fairly easy

- **COVID disease perceptions**: High perceived risk and severity

**Profile**

- Convinced of the threat of Covid-19 but has concerns around Covid-19 vaccines

**Confidence**: Low

**Convenience**: Some concerns

**Complacency**: High

**WHERE do we find them?**

People in the vaccine skeptics segment can be seen in greater numbers in the dark blue squares on the map below, around the Cape Town area. They aren’t focused in one place.

**HOW do we reach them?**

Media consumption patterns for Vaccine Skeptics around Cape Town can be seen in the chart below.

Given their heavy social media use, as well as their broad geographical distribution, a digital programmatic RCCE campaign via WhatsApp and Facebook might be most effective to reach this group, using geolocations as target points.

**Putting it all together**: In order to reach Vaccine Skeptics near Cape Town, leverage Facebook and WhatsApp Platforms near Cape Town, Lansdowne and Claremont.
**Ex. 2: Finding ‘Enthusiastic Pragmatists’ Nationally**

How do we reach those who *want* vaccines but don’t think they can get them?

<table>
<thead>
<tr>
<th>Segment 3</th>
<th>Enthusiastic pragmatists</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHO are we looking for?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Summary</strong></td>
<td>Convinced of COVID threat and merits of a vaccine, but inhibited by practical barriers. Cost-benefit analysis of the process could cause uptake delay.</td>
</tr>
<tr>
<td>% of population</td>
<td>19%</td>
</tr>
<tr>
<td>Likelihood to take a COVID-19 vaccine</td>
<td>High</td>
</tr>
<tr>
<td>Speed of uptake</td>
<td>As soon as possible</td>
</tr>
<tr>
<td>Perceived ease of getting the vaccine</td>
<td>Not easy/not at all easy</td>
</tr>
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| **WHERE do we find them?** |

People in the **enthusiastic pragmatists** segment are disproportionately located around Kwazulu-Natal and near Durban.

| **HOW do we reach them?** |

Residents in KwaZulu-Natal mostly use social media, but most also watch regularly, primarily in Isuzulu.

- **Social Media**
  - Facebook Users: 91%
  - Instagram Users: 44%

- **Language**
  - English: 12%
  - Afrikaans: 1%
  - Isixhosa: 7%
  - Isizulu: 70%

- **Communications and Media**
  - TV Viewers: 66%
  - Mobilephone Ownership: 93%
  - Radio Ownership: 61%
Ex. 3: Understanding Complacency in Johannesburg

How do we reach those who might take a vaccine but don’t see a risk in Covid, in Johannesburg?

WHO are we looking for?

People in central Johannesburg tend to be less complacent, whereas those in the suburbs – particularly to the south-east and east, tend to be more complacent.

WHERE do we find them?

Pop-up vaccination sites in the east end of Johannesburg could be used to reach those in complacency ‘hot spots’ where the residents tend to be less motivated to travel for a shot.

HOW do we reach them?

We also know that those who are more complacent in this neighborhood tend to have more convenience-related challenges, so pop-up clinics would serve them well.
What are other use cases for these data?
Appendix
Hyperlocal Support of Vaccine Uptake

Phase 1: Ready December 2021
Phase 2: In Scope for 2022

Property of Johnson & Johnson
Contacts

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Director of New Business

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New Business Manager

Property of Johnson & Johnson
# Meet the segments: An introduction

<table>
<thead>
<tr>
<th>Segment 1</th>
<th>Segment 2</th>
<th>Segment 3</th>
<th>Segment 4</th>
<th>Segment 5</th>
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<tr>
<td>Confident enthusiasts</td>
<td>Vaccine sceptics</td>
<td>COVID cynics</td>
<td>Enthusiastic pragmatists</td>
<td>Vaccine ambivalents</td>
</tr>
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## Summary

- **Confident enthusiasts**: Convinced of COVID threat and vaccine benefits. Would be quick adopters driven by social responsibility to protect their community.
- **Vaccine sceptics**: Convinced of COVID threat, but scepticism around vaccine safety and efficacy inhibits perceived benefit and quick uptake.
- **COVID cynics**: Strongly hesitant of COVID threat and a COVID vaccine. Mistrust in the vaccine’s purpose and advocates means they will be slow to vaccine adoption, if at all.
- **Enthusiastic pragmatists**: Convinced of COVID threat and merits of a vaccine, but inhibited by practical barriers. Cost-benefit analysis of the process could cause uptake delay.
- **Vaccine ambivalents**: Not convinced of the threat of COVID as a disease and lack motivation to seek a vaccine, but few barriers to uptake. Could be moved by social norms and strong messaging.

<table>
<thead>
<tr>
<th>% of population</th>
<th>24%</th>
<th>25%</th>
<th>12%</th>
<th>19%</th>
<th>20%</th>
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<table>
<thead>
<tr>
<th>Likelihood to take a COVID-19 vaccine</th>
<th>Very High</th>
<th>Moderately low</th>
<th>Very Low</th>
<th>High</th>
<th>Moderate</th>
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<th>As soon as possible</th>
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