Geographical Distribution of Service Gaps Among the NYC CHAIN Cohort: A Geomapping Analysis

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HIV Planning Council

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ACKNOWLEDGMENTS

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INTRODUCTION:

This report is a follow-up to an earlier CHAIN report, A Geographic Display of the CHAIN Cohort’s Service Utilization (Update #42, May 2001). It is intended to present a graphic display of service gaps in New York City’s system of HIV care, as experienced by respondents in the CHAIN cohort.

In any geomapping analysis there is a trade-off between displaying data down to an address level, or aggregating information to a larger geographical area, such as a census tract or a zip code. Particularly with individual HIV and AIDS data, address-level data threatens an individual’s privacy. Wherever we have used address-level data, we have presented the data on a map in such a way that it would be impossible to ascertain a specific address, or even a specific block. When considering at what level to aggregate data, for planning purposes one must consider whether there are a sufficient number of cases in that geographical area from which to make probabilistic statements, and also whether the area is a geographically recognizable entity. Rather than use zip codes, we first considered using the 42 neighborhoods classified by the United Hospital Fund (UHF), but given that in some cases we were faced with distributing 84 cases across 42 units, we decided that this was too small a unit. Instead, we settled upon 14 sub-borough areas that aggregate the 42 UHF neighborhoods.

For this report, we have capitalized on several data sets: CHAIN cohort data from the 5th through 8th rounds of interviewing, encompassing the years 1998-2001; Ryan White funding data for all titles for the same period of time (a further explanation of the Ryan White data may be found in the Ryan White Impact Report, Update #35, May 2001); and AIDS prevalence and mortality data. We have characterized Ryan White funded agencies by site of service, and by the type of program being funded. If an agency serves as a fiscal conduit for Ryan White funding, we will only identify the agency where the service is provided, not the site where the monies are processed. One of this report’s limitations is that we do not have similar information for other agencies that do not receive any Ryan White funding.

Table 1 illustrates how we define service gaps within five major service areas: health, case management, housing, alcohol or drug treatment, and mental health. They are not intended to cover every service funded within an HIV system of care, but rather to represent guideposts for assessing the system. These measures were also limited by the data collected in the CHAIN survey, which although it includes over 900 variables is still dependent upon a respondent’s self-report. As such, a service gap may not measure directly whether the client received a particular service, but rather whether the client perceived receiving a specific service. This still provides powerful evidence. If a client believes that he or she has not received any case management (and cannot even identify anyone who has attempted to help them), one could argue that even if a case manager has provided services for a client it has likely had little impact.

CHAIN data may be used to measure “subjectively expressed” and “objectively assessed” needs. To illustrate, if a client reports that she needs or has sought out housing services, that is subjectively expressed by the client herself. If, on the other hand, a client reports that she has been unstably housed in the past 6 months – perhaps doubled-up on a friend’s couch – that would be regarded as an objectively assessed need. If either is present, the client is regarded as having a need for housing services. A service gap would exist if the client reported that she had not received any housing services in the prior six months or she isn’t living in specialized AIDS housing (which could be construed as a potential “solution” to her housing
problems). For some health services, such as comprehensive medical care and patient/provider communication, it has been assumed that all HIV-positive adults have a presumptive need for that service.

In order to have a sufficient number of cases to display in the maps, we restricted the illustrations to service gaps with a minimum of 80 cases. As such, we report on the following service gaps:

- Comprehensive medical care gaps
- Patient / provider communication gaps
- Treatment adherence gaps
- Comprehensive case management gaps
- Counseling case management gaps
- Permanent housing gaps
- Professional mental health gaps
- Alcohol or drug treatment (AOD) service gaps

The first two maps establish the basic “denominators” – the number and relative distribution of People Living with AIDS (PLWA) as of 2000 and respondents in the CHAIN cohort who participated at interview round 5 through 8 (1998 - 2001). The following five sections each illustrate a single (or sometime several) service gaps.

In order to determine the estimated number of PLWAs in a given sub-borough area who might be experiencing a service gap, we applied the proportion of CHAIN respondents within that sub-borough area with a service gap to the total number of PLWAs. Therefore, if 30% of CHAIN respondents in Upper Manhattan reported a mental health service gap, and there were 200 PLWAs living in that sub-borough area, we would estimate a total of 60 PLWAs who might be experiencing that service gap. Given that CHAIN represents a cohort of individuals presently engaged in the system of care, this number likely underestimates the true need for service.

**IMPORTANT NOTE:** Please keep in mind that these projected numbers are restricted to an estimate of People Living with AIDS, and does not represent an estimate of people living with HIV, non-AIDS that might be experiencing that service gap as well.

The first service gap, “Health-1,” illustrating the projected number of PLWA’s with a comprehensive medical care service gap, utilizes a base map of HIV/AIDS mortality per 10,000 population in each given sub-borough area. We felt that this represents an additional measure of health need alongside the service gap, in that it presumes that a higher AIDS mortality rate would be related to a greater need for medical care within that area (in an idealized model, where everyone had equal access to high-quality medical care and therapeutic options, AIDS mortality rates would be reasonably similar across geographical areas; obviously there could be differences based on year of diagnosis and the prevalence of comorbid conditions within specific geographically-located populations).
Within each of the eight service gaps illustrated in this report, we have followed a similar format in presenting each series of maps:

1. A projected number of PLWA’s living with that specific service gap in that sub-borough area;
2. The relationship between Ryan White-funded agencies serving that particular need and the actual geographical distribution of cases of service gaps in the CHAIN cohort, overlaid on a map including bus and subway lines.

**Key Findings**

- Generally speaking, the geographical distribution of service gaps tends to mirror the epidemiology of PLWA’s in the sub-borough areas. For the most part, the areas with the greatest level of service needs are upper Manhattan, the South Bronx, and Central Brooklyn, with West Queens and lower and mid Manhattan and north Brooklyn following closely behind. There are several notable exceptions: in both case management service gaps and in professional mental health service gaps, West Queens appears to have a greater density of service gap than its AIDS epidemiology would suggest. Conversely, there is a smaller treatment adherence service gap in West Queens and North Brooklyn than one might expect given the AIDS epidemiology in those areas.

- When each case of a particular service gap is examined in relationship to its proximity to a Ryan White funded agency nominally serving that service area, there appear to be significant clusterings of populations in need around areas with Ryan White funded agencies. Furthermore, given the density of bus and subway transportation lines, every agency is located along a transportation grid. There are several areas of service gap distributions – notably comprehensive medical care, patient/provider communication, comprehensive case management, AOD, and professional mental health service gaps – in South Queens for which there are few (or no) nearby Ryan White-funded service agencies. There are also a number of AOD and comprehensive case management service gap cases in South Brooklyn that are not close to Ryan White funded agencies serving those needs.

- The projected number of PLWA with any given service gap can be construed as the minimum number within a given sub-borough area. For example, in looking at comprehensive case management gaps, there are 5,997 PLWA’s in Manhattan who are projected to be experiencing that service gap. We offer this as a beginning effort to identify areas of greatest unmet need, and as a formative way of estimating a “market” for specific services.
<table>
<thead>
<tr>
<th>Service</th>
<th>NEED</th>
<th>SERVICE GAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEALTH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive medical care</td>
<td>Positive HIV serostatus</td>
<td>Primary HIV medical provider does not provide ALL of the following: (1) Routine check-ups, well visits, vaccinations, (2) Source of health advice, (3) 24-hour access for medical emergencies</td>
</tr>
<tr>
<td>Patient / Provider communication</td>
<td>Positive HIV serostatus</td>
<td>Patient doesn’t know t-cell or viral load, OR says current doctor “could do a better job explaining my treatment options to me”</td>
</tr>
<tr>
<td>Treatment adherence</td>
<td>On antiretroviral medications</td>
<td>Among non-adherent, not receiving treatment adherence services</td>
</tr>
<tr>
<td><strong>CASE MANAGEMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM: Comprehensive care model</td>
<td>(1) Current drug user OR (2) very low mental health score OR (3) recent episode of unstable housing OR (4) experienced a barrier to medical or social service because didn’t kow where to go, couldn’t get child care, couldn’t get transportation, or couldn’t afford care OR (5) says there’s not enough money in the household for rent, utilities, food, or clothing</td>
<td>Among those with a need, no CM developed a care plan, assisted in getting or referring client to social services, or helped fill out forms for benefits or entitlements in past 6 months</td>
</tr>
<tr>
<td>CM: Counseling model</td>
<td>(1) Scored very low on mental health score OR (2) current drug user OR (3) practiced unsafe sex in past 6 months</td>
<td>Among those with a need, no CM counseled client regarding personal life, drug or alcohol problems, practicing safer sex, or periodically checked up on client in past 6 months</td>
</tr>
<tr>
<td><strong>HOUSING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent Housing Services</td>
<td>(1) At least one episode of unstable housing or doubled-up in past 6 months, OR (2) reported that s/he needed help related to homelessness, critical need to move, physical access issues, poor housing quality, or dangerous neighborhood</td>
<td>No housing service received, OR client not living in specialized AIDS housing</td>
</tr>
<tr>
<td><strong>MENTAL HEALTH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Mental Health</td>
<td>Scored very low on a mental health score (Mental component summary (MCS) ( \leq 37.0 ))</td>
<td>Respondent did not report receipt of professional MH service (psychiatrist, psychologist, therapist, therapeutic social worker) in prior 6 months</td>
</tr>
<tr>
<td><strong>ALCOHOL OR DRUGS (AOD)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AOD</td>
<td>(1) Current drug or heavy alcohol user OR (2) client said that treatment or further treatment is “considerably” or “extremely” important</td>
<td>No reported therapeutic or self-help AOD treatment in prior 6 months</td>
</tr>
</tbody>
</table>
Total Number of PLWAs by Sub-Borough

Number of PLWAs

- 500 - 1000
- 1001 - 2000
- 2001 - 3000
- 3001 - 5000
- 5001 - 8000

<Source>
Info Share, AIDS 2000
PLWAs N=47,825
CHAIN Study Wave 5,6,7,8 (N=645)
7 Homeless excluded
Number of CHAIN Cohort by Sub-Borough

Number of CHAIN cohort

- 4 - 10
- 11 - 20
- 21 - 50
- 51 - 100
- 101 - 124

<Source>
CHAIN Study Wave 5,6,7,8 (N=645)
7 homeless excluded
Part I. Service Gaps
Appropriate Medical Care
Health-1. Projected Number of PLWAs with Comprehensive Medical Care Service Gap by Sub-Borough

Death rate for HIV/AIDS per 10,000
- 0.15 - 0.50
- 0.51 - 1.00
- 1.01 - 2.50
- 2.51 - 5.00
- 5.01 - 7.11

Projected # of PLWAs with Gap

<Source>
NYC DHMH, HIV surveillance data
- PLWAs N=47,825 in 2000
- Death of HIV/AIDS N=2,430 in 2002
CHAIN Study Wave 5,6,7,8 (N=645)
(7 Homeless excluded)
Health-1b. Ryan White-Funded Primary Medical Care Agencies in NYC (all titles) and CHAIN Cohort with Comprehensive Medical Care Service Gap

<table>
<thead>
<tr>
<th>Region</th>
<th>RW funded MD Agency</th>
<th>CHAIN Cohort</th>
<th>Service Gap</th>
<th>No Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>88</td>
<td>(645)</td>
<td>24%</td>
<td>76%</td>
</tr>
<tr>
<td>Manhattan</td>
<td>38</td>
<td>(167)</td>
<td>28%</td>
<td>72%</td>
</tr>
<tr>
<td>Bronx</td>
<td>19</td>
<td>(220)</td>
<td>27%</td>
<td>73%</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>16</td>
<td>(145)</td>
<td>16%</td>
<td>84%</td>
</tr>
<tr>
<td>Queens</td>
<td>6</td>
<td>(67)</td>
<td>21%</td>
<td>79%</td>
</tr>
<tr>
<td>Staten Island</td>
<td>9</td>
<td>(46)</td>
<td>24%</td>
<td>76%</td>
</tr>
</tbody>
</table>
Health-2. Projected Number of PLWAs with Patient/Provider Communication Service Gap by Sub-Borough

Projected # of PLWAs with Gap

- Light Gray: 307 - 300
- Light Blue: 301 - 600
- Medium Blue: 601 - 1000
- Dark Blue: 1001 - 2000
- Dark Brown: 2001 - 2824

Staten Island: 307
South Queens: 318
East Queens: 913
North Bronx: 1282
East Bronx: 566
West Queens: 2154
South Bronx: 2469
Southwest Brooklyn: 313
Southeast Brooklyn: 433
North Brooklyn: 1330
Central Brooklyn: 1353
Upper Manhattan: 1670
Mid-Manhattan: 2824
Lower Manhattan: 616

<Source>
Info Share, AIDS 2000
PLWAs N=47,825
CHAIN Study Wave 5,6,7,8 (N=645)
7 Homeless excluded
Health-2b. Ryan White-Funded Primary Medical Care Agencies in NYC (all titles) and CHAIN Cohort with Patient/Provider Communication Service Gap

<table>
<thead>
<tr>
<th>RW funded MD Agency</th>
<th>CHAIN Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
</tr>
<tr>
<td>All</td>
<td>88</td>
</tr>
<tr>
<td>Manhattan</td>
<td>38</td>
</tr>
<tr>
<td>Bronx</td>
<td>19</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>16</td>
</tr>
<tr>
<td>Queens</td>
<td>6</td>
</tr>
<tr>
<td>Staten Island</td>
<td>9</td>
</tr>
</tbody>
</table>

- Health-2 svc needy (234)
- MD-RW agency (88)
- Subway Line
- Sub-borough
Health-3. Projected Number of PLWAs with Treatment Adherence Service Gap by Sub-Borough

Projected # of PLWAs with Gap

- 0 - 150
- 151 - 300
- 301 - 500
- 501 - 750
- 751 - 1005

Source: Info Share, AIDS 2000
PLWAs N=47,825
CHAIN Study Wave 5,6,7,8 (N=645)
7 Homeless excluded
Health-3b. Ryan White-Funded Primary Medical Care Agencies in NYC (all titles) and CHAIN Cohort with Treatment Adherence Service Gap

<table>
<thead>
<tr>
<th>Sub-borough</th>
<th>RW funded MD Agency</th>
<th>CHAIN Cohort</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>Service Gap</td>
<td>No Gap</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>88</td>
<td>(545)</td>
<td>14%</td>
<td>76%</td>
</tr>
<tr>
<td>Manhattan</td>
<td>38</td>
<td>(167)</td>
<td>13%</td>
<td>87%</td>
</tr>
<tr>
<td>Bronx</td>
<td>19</td>
<td>(220)</td>
<td>17%</td>
<td>83%</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>16</td>
<td>(145)</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>Queens</td>
<td>6</td>
<td>(67)</td>
<td>12%</td>
<td>88%</td>
</tr>
<tr>
<td>Staten Island</td>
<td>9</td>
<td>(46)</td>
<td>15%</td>
<td>85%</td>
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</table>
Part II. Service Gaps for Case Management Service
CM-1a. Projected Number of PLWAs with Case Management: Comprehensive Care Model Service Gap by Sub-Borough

Projected # of PLWAs with Gap

- 102 - 500
- 501 - 1000
- 1001 - 1500
- 1501 - 2000
- 2001 - 2822

<Source >
Info Share, AIDS 2000
PLWAs N=47,825
CHAIN Study Wave 5,6,7,8 (N=645)
7 Homeless excluded
CM-1b. Ryan White-Funded Case Management SVC Agencies in NYC (all titles) and CHAIN Cohort with Case Management: Comprehensive Care Model Service Gap

<table>
<thead>
<tr>
<th></th>
<th>RW funded CM Agency</th>
<th>CM-SS svc needy (198)</th>
<th>CM-RW (166)</th>
<th>Subway Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>165</td>
<td>(645)</td>
<td>69%</td>
<td></td>
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<tr>
<td>Manhattan</td>
<td>67</td>
<td>(167)</td>
<td>62%</td>
<td></td>
</tr>
<tr>
<td>Bronx</td>
<td>41</td>
<td>(220)</td>
<td>67%</td>
<td></td>
</tr>
<tr>
<td>Brooklyn</td>
<td>30</td>
<td>(145)</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td>Queens</td>
<td>17</td>
<td>(67)</td>
<td>64%</td>
<td></td>
</tr>
<tr>
<td>Staten Island</td>
<td>11</td>
<td>(46)</td>
<td>89%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manhattan: 67 (167) 38% 62%
Bronx: 41 (220) 33% 67%
Brooklyn: 30 (145) 23% 77%
Queens: 17 (67) 36% 64%
Staten Island: 11 (46) 11% 89%
CM-2a. Projected Number of PLWAs with Case Management: Counseling Model Service Gap by Sub-Borough

Projected # of PLWAs with Gap

- 102 - 250
- 251 - 500
- 501 - 1000
- 1001 - 1500
- 1501 - 2352

<Source >
Info Share, AIDS 2000
PLWA N=47,825
CHAIN Study Wave 5,6,7,8 (N=645)
7 Homeless excluded
CM-2b. Ryan White-Funded Case Management SVC Agencies in NYC (all titles) and CHAIN Cohort with Case Management: Counseling Model Service Gap

<table>
<thead>
<tr>
<th></th>
<th>RW funded CM Agency</th>
<th>CHAIN Cohort</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(N)</td>
<td>Service Gap</td>
<td>No Gap</td>
</tr>
<tr>
<td>All</td>
<td>166</td>
<td>(645)</td>
<td>24%</td>
<td>69%</td>
</tr>
<tr>
<td>Manhattan</td>
<td>67</td>
<td>(167)</td>
<td>27%</td>
<td>73%</td>
</tr>
<tr>
<td>Bronx</td>
<td>41</td>
<td>(220)</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>30</td>
<td>(145)</td>
<td>16%</td>
<td>84%</td>
</tr>
<tr>
<td>Queens</td>
<td>17</td>
<td>(67)</td>
<td>22%</td>
<td>78%</td>
</tr>
<tr>
<td>Staten Island</td>
<td>11</td>
<td>(46)</td>
<td>11%</td>
<td>89%</td>
</tr>
</tbody>
</table>

CM-CS svc needy (153)

CM-RW (166)

Subway Line

Sub-borough
Part III. Service Gaps for Housing Service
Housing-a. Projected Number of PLWAs with Permanent Housing Service Gap by Sub-Borough

Projected # of PLWAs with Gap
- 61 - 200
- 201 - 400
- 401 - 600
- 601 - 800
- 801 - 1411

Source:
- Info Share, AIDS 2000
- PLWAs N=47,825
- CHAIN Study Wave 5,6,7,8 (N=645)
- 7 Homeless excluded
Housing-b. Ryan White-Funded Housing SVC Agencies in NYC (all titles) and CHAIN Cohort with Permanent Housing Service Gap

<table>
<thead>
<tr>
<th></th>
<th>RW funded Housing Agency</th>
<th>CHAIN Cohort</th>
<th></th>
<th>Service Gap</th>
<th>No Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>54</td>
<td>(645)</td>
<td>13%</td>
<td>87%</td>
<td></td>
</tr>
<tr>
<td>Manhattan</td>
<td>18</td>
<td>(167)</td>
<td>12%</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>Bronx</td>
<td>10</td>
<td>(220)</td>
<td>18%</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td>Brooklyn</td>
<td>21</td>
<td>(145)</td>
<td>12%</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>Queens</td>
<td>2</td>
<td>(67)</td>
<td>7%</td>
<td>93%</td>
<td></td>
</tr>
<tr>
<td>Staten Island</td>
<td>3</td>
<td>(46)</td>
<td>11%</td>
<td>89%</td>
<td></td>
</tr>
</tbody>
</table>
Part IV. Service Gaps for Mental Health Service
MH-a. Projected Number of PLWAs with Professional Mental Health Service Gap by Sub-Borough

Projected # of PLWAs with Gap
- 0 - 200
- 201 - 400
- 401 - 600
- 601 - 800
- 801 - 1148

<Source>
Info Share, AIDS 2000
PLWAs N=47,825
CHAIN Study Wave 5,6,7,8 (N=645)
7 Homeless excluded
### MH-b. Ryan White-Funded Mental Health SVC
Agency in NYC (all titles) and CHAIN Cohort with Professional Mental Health Service Gap

<table>
<thead>
<tr>
<th></th>
<th>RW funded Mental Health Agency</th>
<th>CHAIN Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>Service Gap</td>
</tr>
<tr>
<td>All</td>
<td>69</td>
<td>16%</td>
</tr>
<tr>
<td>Manhattan</td>
<td>39</td>
<td>(167)</td>
</tr>
<tr>
<td>Bronx</td>
<td>8</td>
<td>(220)</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>14</td>
<td>(145)</td>
</tr>
<tr>
<td>Queens</td>
<td>6</td>
<td>(67)</td>
</tr>
<tr>
<td>Staten Island</td>
<td>2</td>
<td>(46)</td>
</tr>
</tbody>
</table>

- MH-b. Ryan White-Funded Mental Health SVC
- MH-RW (69)
- Subway Line
- Sub-borough
- Mental health svc needy (106)
Part V. Service Gaps for AOD Service
AOD-a. Projected Number of PLWAs with AOD Service Gap by Sub-Borough

Projected # of PLWAs with Gap
- 159 - 500
- 501 - 1000
- 1001 - 1500
- 1501 - 2000
- 2001 - 2210

Source:
Info Share, AIDS 2000
PLWAs N=47,825
CHAIN Study Wave 5,6,7,8 (N=645)
7 Homeless excluded
AOD-b. Ryan White-Funded AOD SVC Agencies in NYC (all titles) and CHAIN Cohort with AODService Gap

<table>
<thead>
<tr>
<th></th>
<th>RW funded AOD Agency</th>
<th>CHAIN Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N)</td>
<td>Service Gap</td>
</tr>
<tr>
<td>All</td>
<td>90</td>
<td>645</td>
</tr>
<tr>
<td>Manhattan</td>
<td>43</td>
<td>167</td>
</tr>
<tr>
<td>Bronx</td>
<td>17</td>
<td>220</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>12</td>
<td>145</td>
</tr>
<tr>
<td>Queens</td>
<td>11</td>
<td>67</td>
</tr>
<tr>
<td>Staten Island</td>
<td>7</td>
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NYC Bus and Subway Map
Sub-Borough of NYC