Community Health Maps

Information on Low Cost Mapping Tools for Community-based Organizations

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A Project of:
The National Library of Medicine

- Part of the National Institutes of Health (NIH)
- NLM → Division of Specialized Information Services → Outreach and Special Populations Branch
  - Their Mission: Seek to improve access to quality and accurate health information by underserved and special populations.
Our Goal

Empower community organizations who:

- Focus on vulnerable populations
- Frequently use and collect data
- Need effective, scalable & easy to use mapping tools
- Lack resources (i.e., for proprietary GIS training & software)
How We Work

• Give presentations
• Conduct workshops
  • Train the trainer
• Provide resources
  • Blog
  • Lab exercises
  • Consultation
• Empower you to collect, analyze and manage your own community mapping data
CHM Workflow Permits & Encourages Interoperability

- Community Health Maps (CHM) focuses on low cost and open source tools.
- Data created using Fulcrum or QGIS can be easily brought into Esri’s ArcGIS software.
- Data created with Esri tools can also be brought into QGIS or Carto.
- QGIS can work with shapefiles, Esri personal and file geodatabases, KML and over 100 other formats!
What is GIS???

Databases: Useful but not easy to interpret
A Picture is Worth a 1,000 Words

Data on a map = intuitive
Why GIS Matters

- Location, location, location
- Everything happens somewhere

80% of all information has a geographic component
Answer Spatial Questions

Where...?  What is nearby?
Answer Spatial Questions

How Far?
What’s within one mile?
What is the density?
This all sounds great! How can I do that?
Community Health Maps

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The Community Health Mapping Workflow

Computer → GIS

Tablet/Smart Phone with apps

Internet Mapping
The Community Health Mapping Workflow

Computer → GIS

Tablet/Smart Phone with apps

Internet Mapping
Field Hardware

- Sub-centimeter accuracy isn’t needed
- Use these

Not these
Tablets and Smart phones

- Most already have them!
- Intuitive interface
- Portable
- GPS receiver (iPhone 5 uses GPS + GLONASS)
- Camera
- Wireless networks
- Web
- Email
- Apps
Smartphone Accuracy

A-GPS  Hybrid Positioning  WiFi  Cellular positioning

8 meters  ~ 74 meters  ~ 600 meters

2009 Dr. Paul Zandbergen, UNM
Increasing Accuracy

Today smartphone 3-5 meters

- Can use a 3rd party Bluetooth GPS with your device

Bad Elf ~ $599
1-2 meter accuracy

Dual 105S ~ $100
2.5 meter accuracy
Fulcrum
http://www.fulcrumapp.com/

- Custom forms
- iOS and Android
- Low monthly subscription
How could mapping tie into your program?
The Community Health Mapping Workflow

Computer → GIS

Tablet/Smart Phone with apps

Internet Mapping
Desktop

- Combining field data with other datasets
  - Census etc...
- Conducting spatial analyses
- Making publication quality maps
QGIS - Desktop GIS

- The best free and open source desktop GIS
- Runs on Mac/Windows/Linux
- Intuitive
- Reads/writes all common GIS formats
- Powerful analysis tools
- Great cartographic tools
The Community Health Mapping Workflow

Computer → GIS

Tablet/Smart Phone with apps

Internet Mapping
Web

- When you want to show maps online
- Data sharing
- We looked for the most intuitive solution
- Involves no programming!
Cloud based mapping platform

1) Create a free account
   http://carto.com/
2) Upload data
3) Create visualization
4) Share
Cloud based mapping platform

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Carto

- Create custom visualizations
- Share your maps via links or embed into web page
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Seattle, WA
- Noise pollution
- Bicycle Safety
- Asian American Health

Charleston, SC
- Smoking Cessation
- Migrant Health Resources
- Community Health

Honolulu, HI
- Obesity
- Medicinal Plants
Interest
- Obesity in 8 Native Hawaiian communities

Training
- 1-day in person

Data Collection and Mapping
- Used GIS to create survey areas
- Mapped factors that could impact obesity
Noise Pollution in Urban Native American Seattle Neighborhoods

Community
- The Urban Indian Health Institute
- Interest: Noise pollution and health

Training
- 1-day in-person training, train-the-trainer

Data collection and mapping
- Surveyed Native American neighborhoods
-Measured and mapped noise pollution
There’s an app for that!
SPLnFFT Noise Meter
• Keep community mappers abreast of the most recent advances
• Case Studies
CHM Mapping Lab Exercises

1. Field Data Collection (iOS & Android)
2. Bringing Field Data into QGIS
3. Combining Field Data with other Organizational Data
4. Basic Spatial Analysis
5. Cartography with QGIS
6. Data Visualization with Carto
Community Health Maps Lab Series
Lab 4 - Basic Spatial Analysis
Task 4 - Calculate Areas and Density

https://www.youtube.com/watch?v=ABAhmzUyiQ8&list=PLX3BoyV-
Questions???

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