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Using GIS for Public Health Program Planning

Data driven decision making

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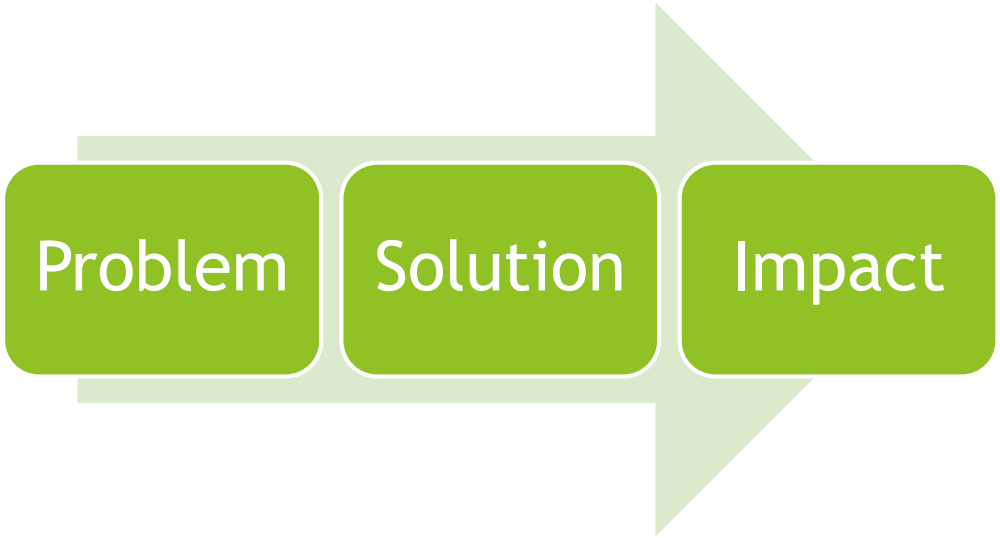
GIS and Public Health

- Underserved Population
- Provider Locations
- Limited Resources



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The Problem

- Public health programs providing needed service to underserved populations
- How can you accomplish this task using defensible, objective data-driven decisions to most prudently use limited resources and serve the largest possible relevant population?
- Identifying and prioritizing the geographical areas which represent the highest level of need
- Example: HealthyWoman Program

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HealthyWoman Program

- Pennsylvania's Breast and Cervical Cancer Screening Program
  - Serves women primarily between the ages of 40-64
  - Low income, un- or under-insured
- Program receives approximately $5 million annual funding
  - Screens approximately 8,000 women per year
  - This represents less than 10% of the eligible population in PA
- How do we identify areas of greatest need around the Commonwealth?
  - Provider recruitment/placement decisions
  - Funding allocations

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The Solution

- Two parts
- Identifying burden of breast and cervical cancer across the Commonwealth
  - Taking into account eligible population
- GIS
  - Displaying this information, along with existing provider locations

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Burden Index Methodology

- Want to create one measure incorporating a wide range of factors relevant to Breast and Cervical Cancer and our eligible population
- Cancer Statistics
  - Incidence and Mortality, Rates and Counts
- BRFSS Data
  - Risk Factors
    - No Mamm/Pap, others
- SAHIE Population Data
  - Eligible Population by County

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Burden Index End Result

- Sewing it all together
- “Who’s line is it anyway?” principle
- Index scores by county
- How can we display this data
  - Enter GIS

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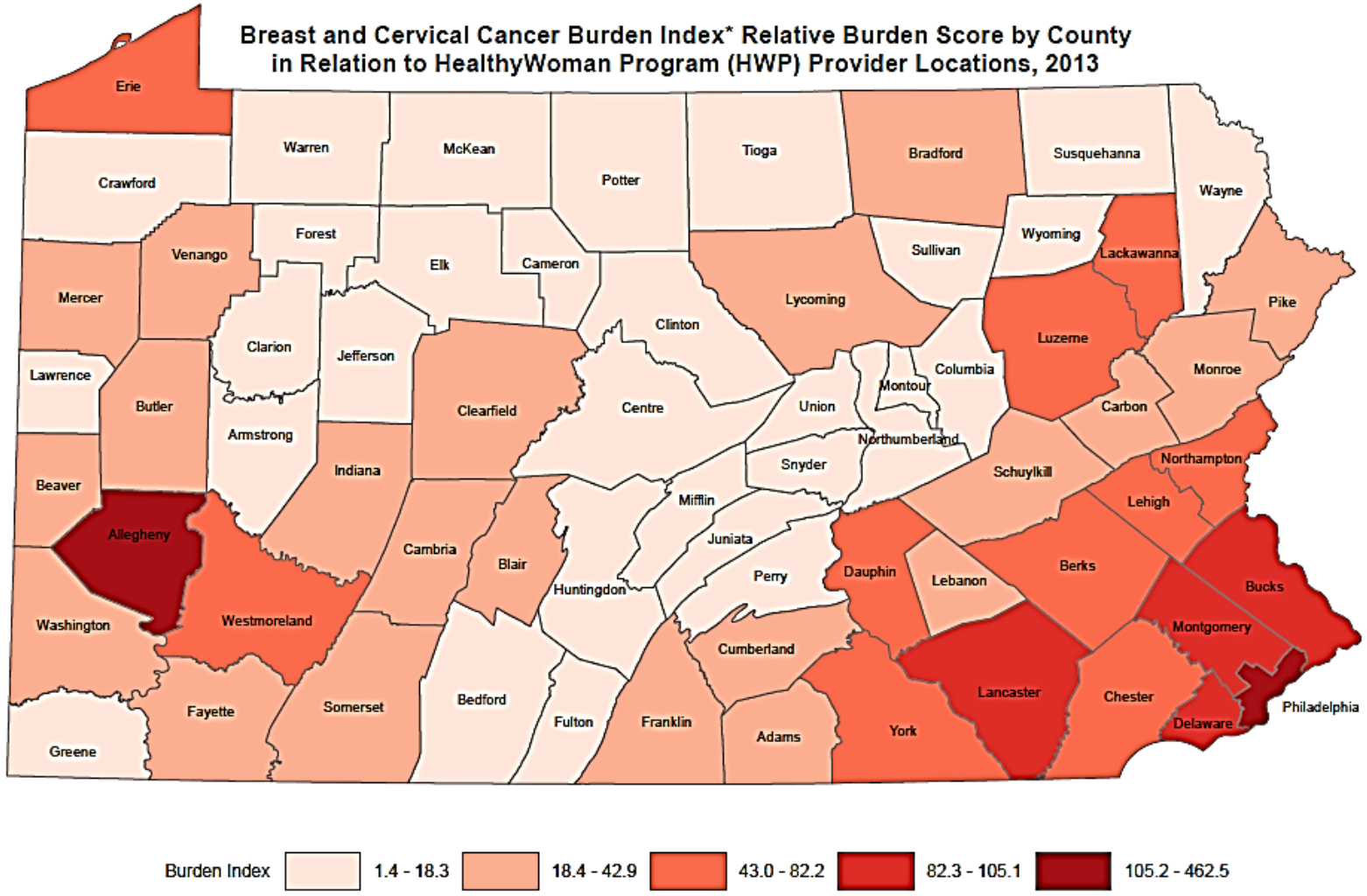

Burden Index

Contextualization

- Comparison of Burden Index to real-world program provider data
- Geocoding
  - Provider list, street level
- Geocoding Challenges

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Map Symbology/Methodology

- Cloropleth
- Coloring
  - Hues, Shades, and Colorbrewer
- Sensibly dividing Index values into mutually exclusive ranges
- Labeling

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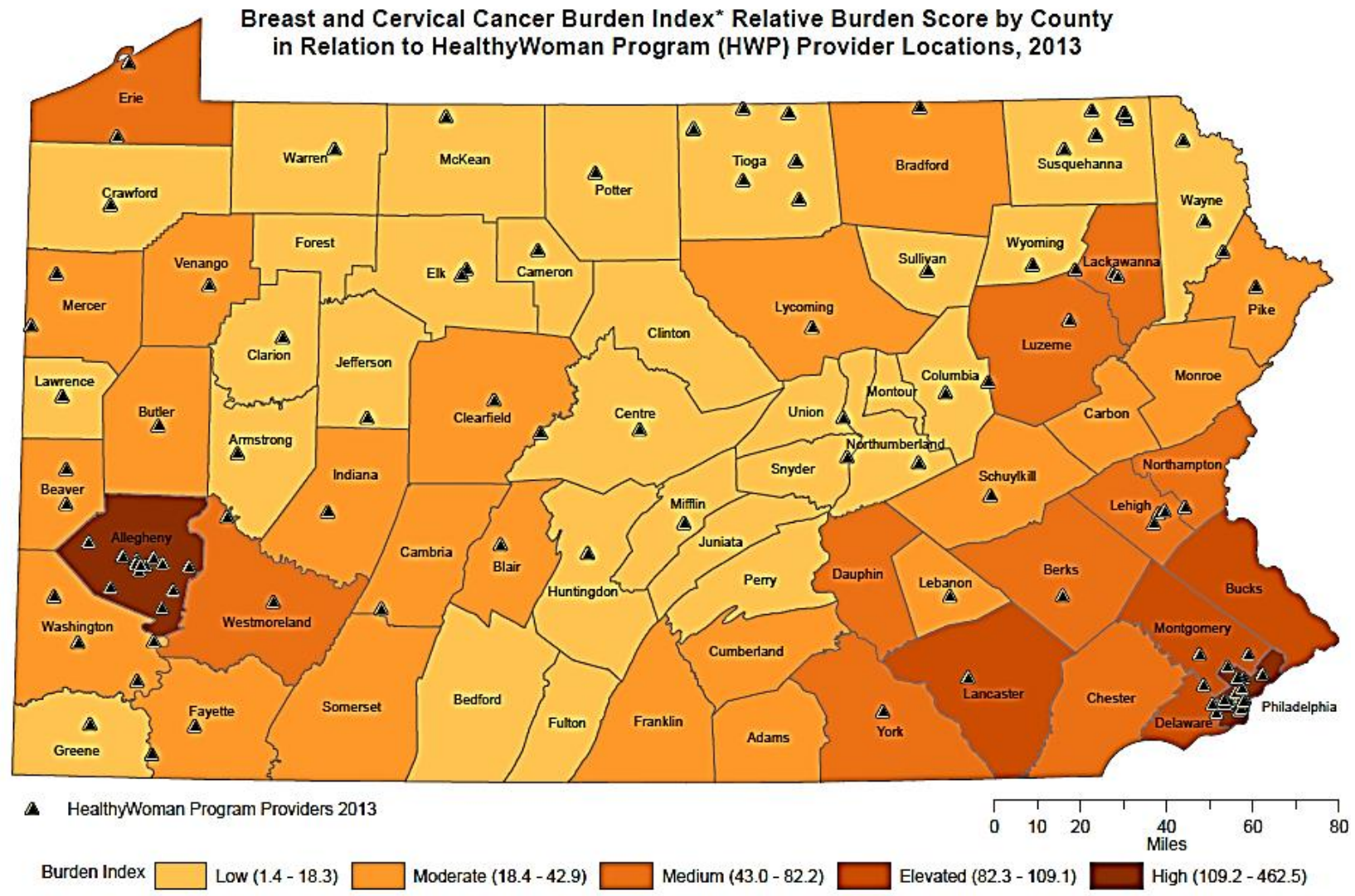
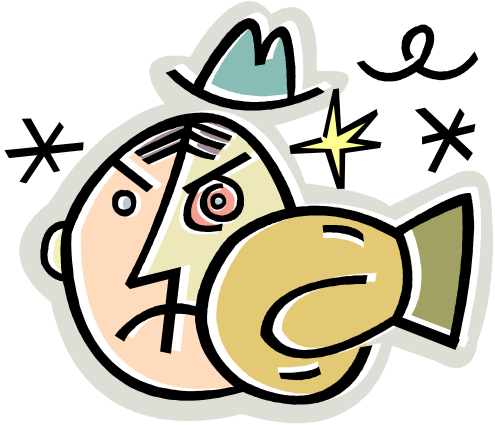


Burden Index with Providers

The Impact



- A map illustrating provider locations with a combined burden index
  - Can now objectively assess resources as measured by providers in comparison to burden levels across the Commonwealth
- Grant implications
  - This map along with other data used to insert critical county language and provider location requirements
  - Tangible impact on program and services

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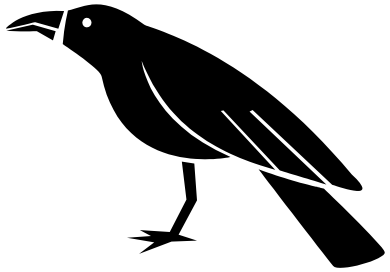
Further Analysis

- Additional useful programmatic information can be mapped
- Service area coverage
  - Travel often a barrier to our eligible population
- Network Analysis
  - More realistic of distance/travel times than simple buffers



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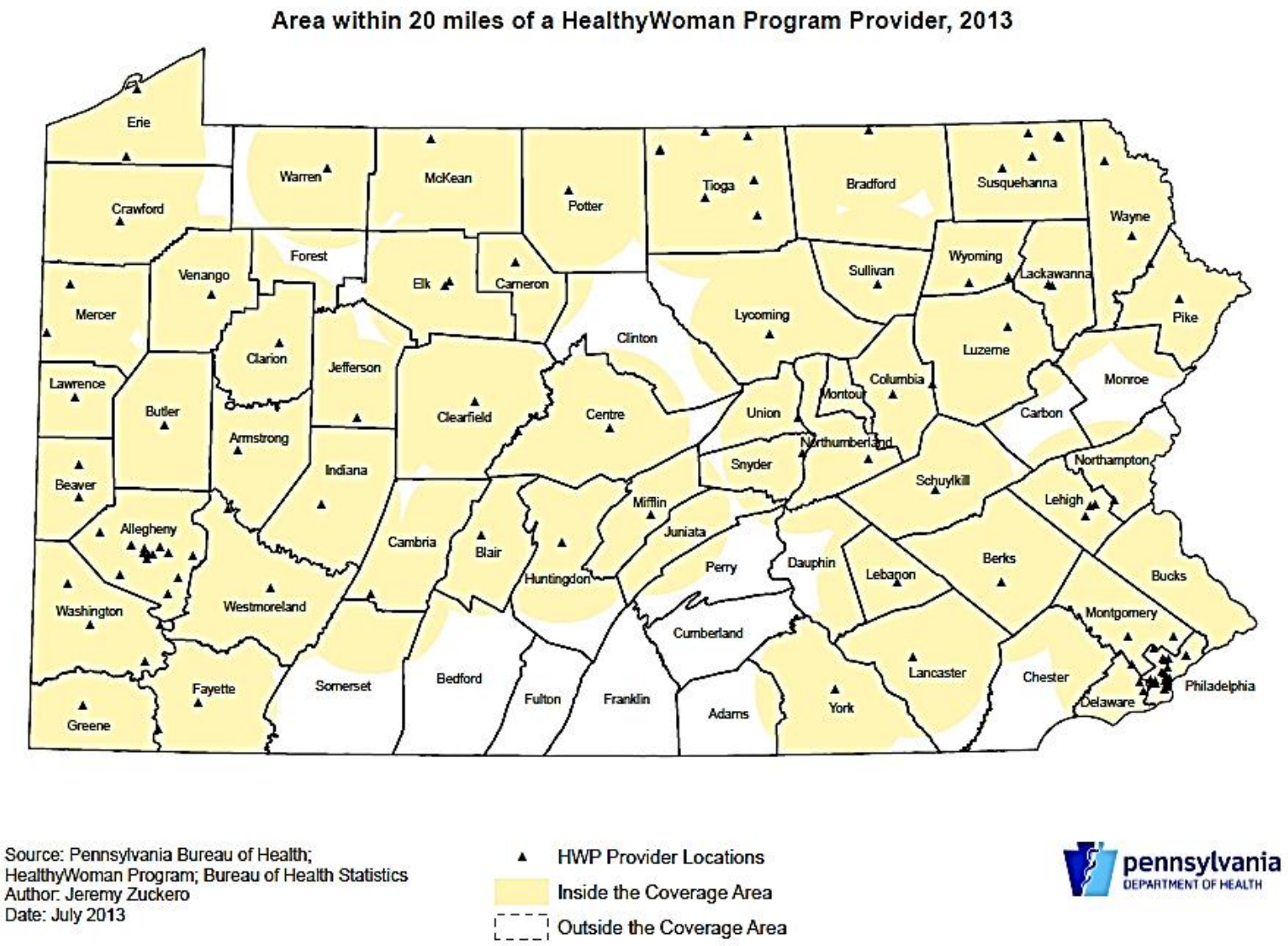
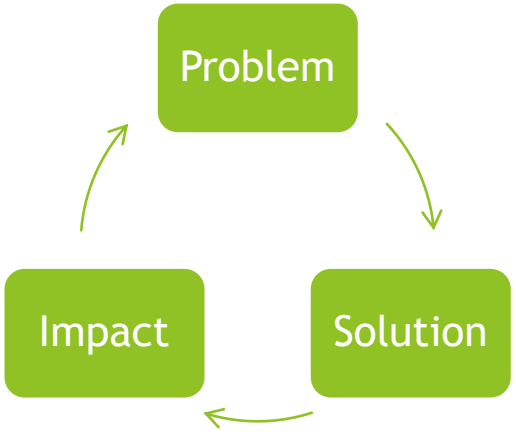


Service Area

Conclusion

- Using GIS in the service of supporting data driven program decisions
  - Role of Health Statistics
- Powerful visual impact
- Immediate usefulness to program staff, contractors, or others



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Questions?

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