Considerations for Building Analytic Capacity

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Purpose

- Promote an understanding of work involved in data management

- Understand alternate considerations for decision making around building capacity

- Understand the attributes and trade-offs with different analytic software

Resource Profile

- Five resources that will affect your DM system development

- Design towards strengths and aim to reduce risks

- Leadership (on research activities)
  - Strategic: decisions on planning, priorities and budget
  - Operational: recommendations for systems, implementing plans and maintaining DM processes

Resource Profile (2)

- Personnel
  - People involved in the data management activities
  - Quantity and overall quality
- Budget
  - Quantity
  - Availability
- Timeframe
- Technology Environment

Data Management Planning

- Data collection and verification
  - Data quality
- Data Inventory
  - Catalog of necessary files (data, programs, backups)
- Data validation and cleaning
  - Logic checks
- Data transformation and analysis
  - Use analysis goals to reduce effort
- Reporting
  - Control, documentation, draft analysis, final analysis
- Process monitoring
  - priorities

Considerations about Capacity

- Do you have the resources (capacity) to deliver the products your constituents need (or you want)*?
  - If yes, create schedule for creation of products
  - If no, identify gaps by profile subcomponent (personnel, budget, etc.)
- Options for addressing gaps (building capacity):
  - Training
  - Hiring
  - Contracting/Collaborating

Training

- Training existing staff to do analysis
    - Pros:
        - Seemingly lower cost than hiring additional personnel
    - Cons:
        - Learning time
        - May decrease capacity in other areas
        - Intangible cost related to restarting work that was interrupted

Hiring

- Bringing additional personnel onboard to do analytic work
  - Pros:
    - Speed
  - Cons:
    - Additional salary cost
    - Will likely still need training, though training in oral health

Contracting

- Procuring external analytical services
    - Pros:
        - Contracting provides flexibility
    - Cons:
        - Specs require higher communication needs

Collaborating

- Working in partnership with an external entity
  - Pros:
    - Cost-effective
  - Cons:
    - Highest communication needs

Acquiring Analytic Capacity Summary

- Hire oral epidemiologists
- Train non-oral health analysts
- Collaborate when you can build a long-term relationship with a partner
- Contract when you need to

Statistical Software Choices

- ArcGIS
- EpiInfo
- R
- SAS

- SPSS
- Stata
- SUDAAN

Considerations for Choosing Statistical Software

- Cost
  - Licenses, Availability, Maintenance and support
- Expertise
  - Basic vs advanced
  - Is the software itself limited?
- Learning Curve
  - Training, "Online" help, communities of practice, time

Comparison of Software

	Cost	Expertise	Training	Complex Sample Surveys
ArcGIS	H	H	H	-
EpiInfo	Free	L	M	
Minitab	M	M	L	
R	Free	H	H	
SAS	L/Free*	H	H	Y
SPSS	H*	M	L	Y*
Stata	L	M	L	Y
SUDAAN	M**	H*	H	Y

Summary

- Training existing personnel to perform data management and analytical work may prove to be too disruptive to operations

- Hiring an analyst and training them in oral health capitalizes on your strengths and reduces risk

- Different software have different strengths. Consider using more than one to maximize capability

References

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