

# Data Policy Advisory Committee

## Common Ground Update Business Process Review

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# Common Ground Grant

- Robert Wood Johnson Foundation
- December 1, 2006 – November 30, 2009
- National Collaborative
- Local California Project



# National Collaborative

- How do we do our work now?  
*(Business Process Analysis)*
- How should we do our work?  
*(Business Process Redesign)*
- How can an information system support our work?  
*(Requirements Definitions)*



# Why do Common Ground?

## Business Process Analysis Provides Tool

- How do we do our work?
- Is our work effective?
- Is there commonality to our work?
- Who are we ultimately here to serve?



# Current Tools

How do we currently describe our work?

- Feasibility Study Reports
- Grant Proposals
- Budget Change Proposals
- Others ...



# Why use BPA in Public Health?

## BPA – Business Process Analysis

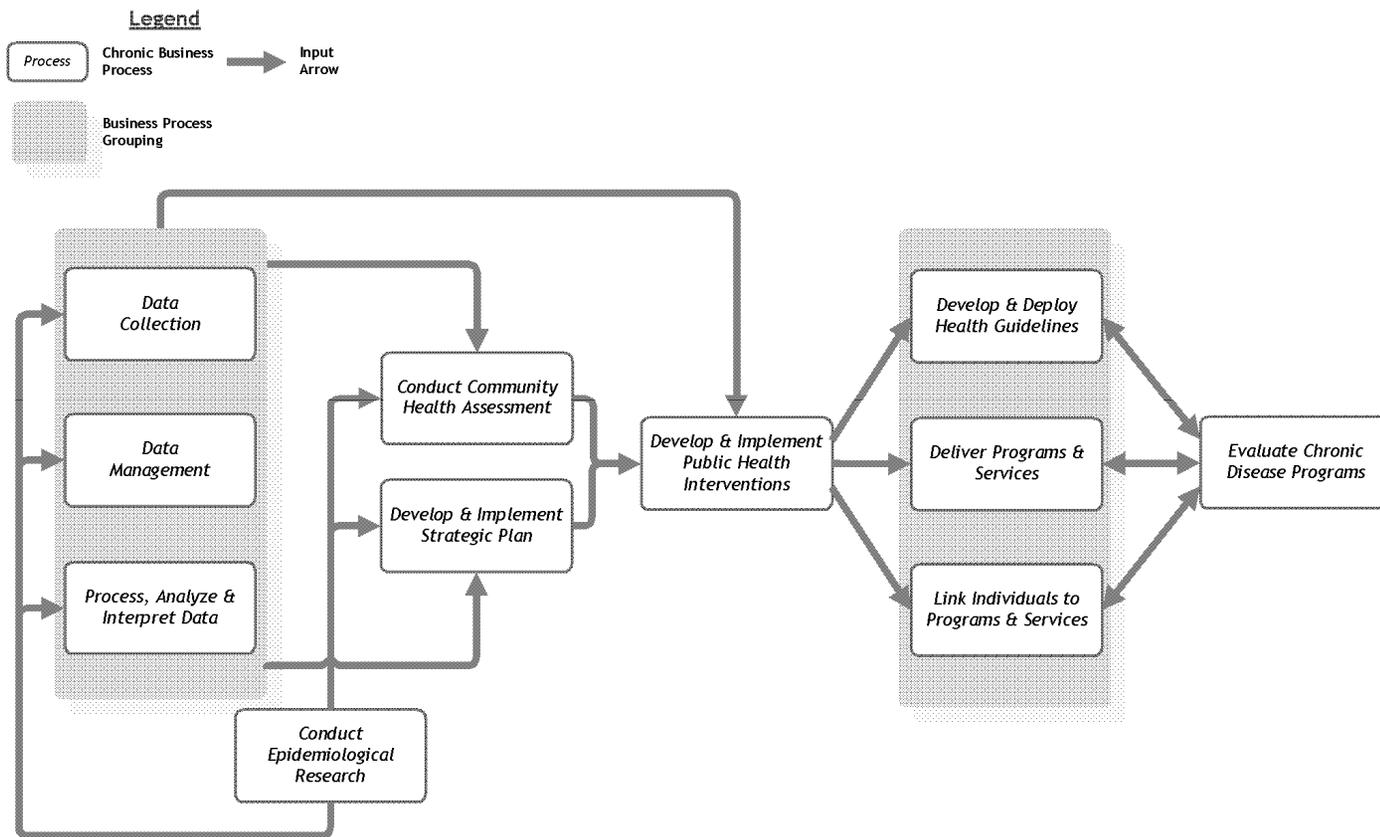
- Increased focus on integration
- Integration of IT
- Integration of Program Activities
- Improved efficiency with scarce resources



# National Collaborative

## Chronic Business Processes and Relationships

Common Ground  
Chronic



Common Ground Chronic - Task Flows.082108.v37



# Data Processes

- Data Collection
- Data Management
- Process, Analyze & Interpret Data

## *Essential Services:*

- 1. Monitoring health status to identify community health problems including health disparities.*
- 2. Detecting and investigating health problems and health hazards in the community.*



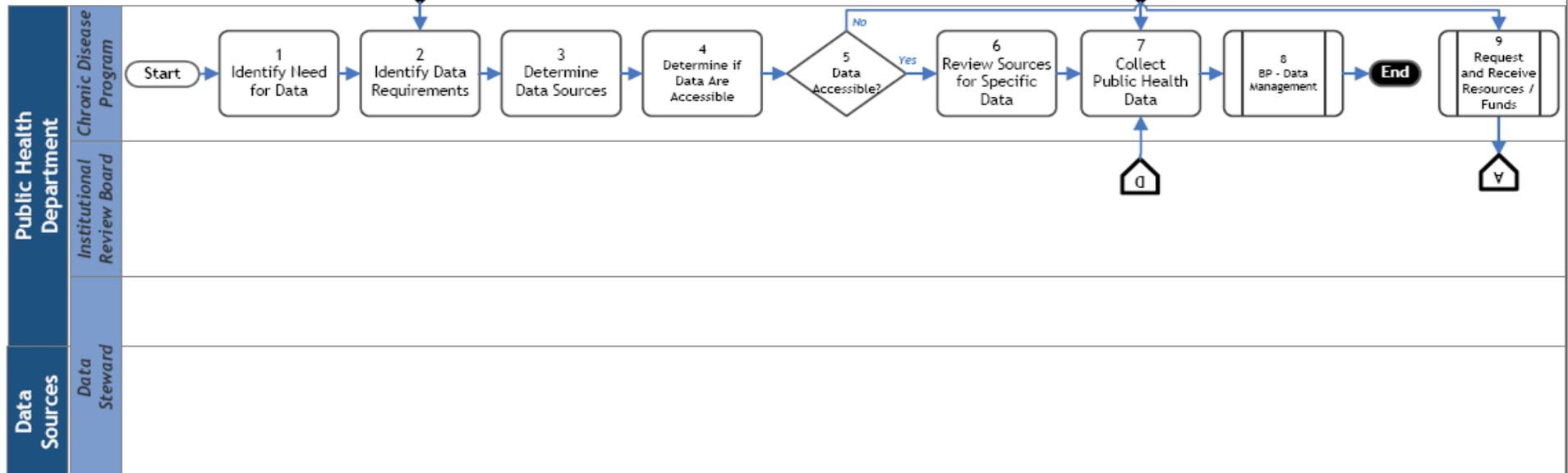
# Data Collection

- Identify Need
- Identify Data Requirements
- Determine Data Sources
- Funding
- Human Subjects Review (CPHS)
- Collect Data
- Data Steward Review
- Data Sharing Agreement
- Receive Data

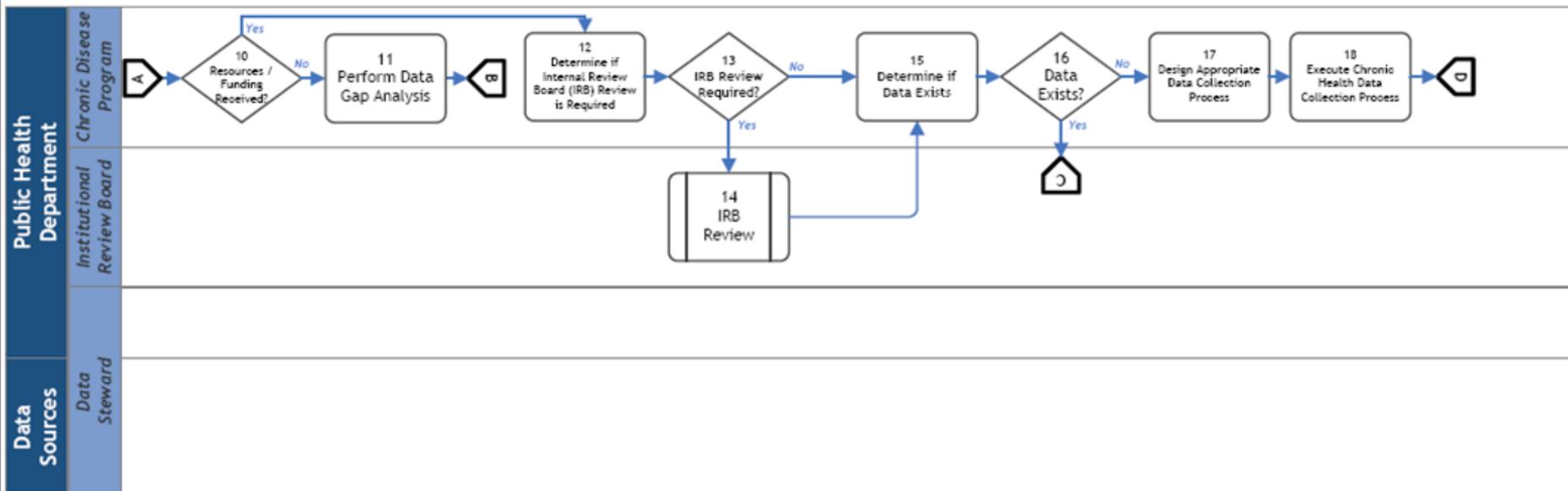


# Data Collection

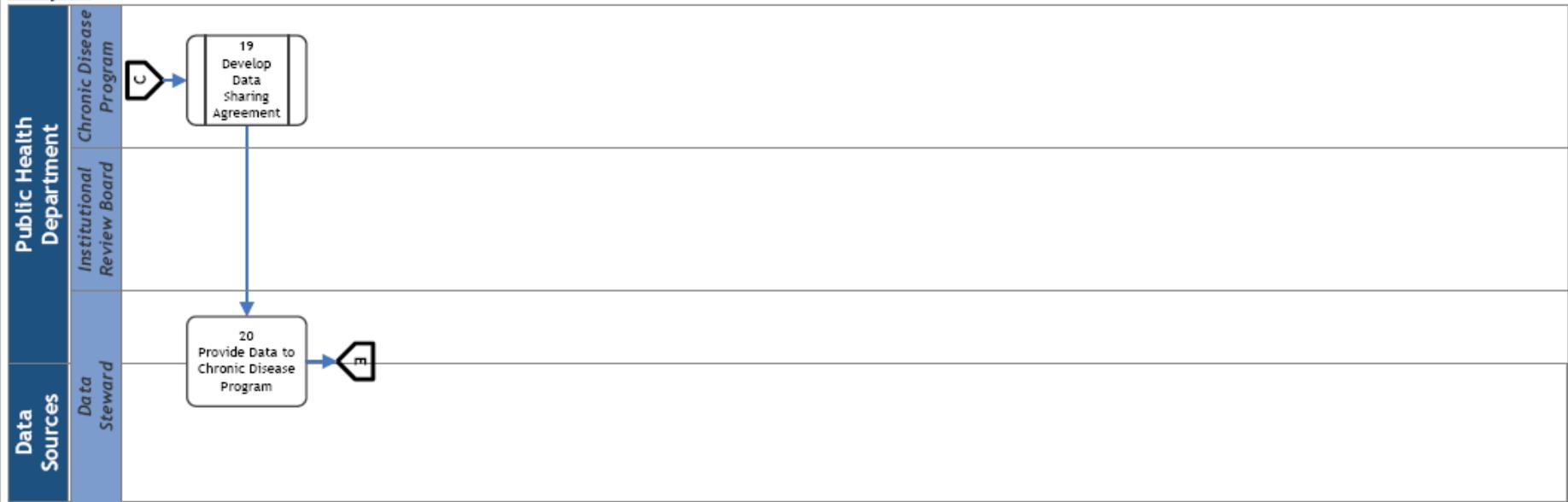
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Activity Details / Narrative	<p><b>General Process Notes</b></p> <ul style="list-style-type: none"> <li>The triggers for new information related to chronic disease may be legal mandates, strategic planning needs, gaps in current data, etc.               <ol style="list-style-type: none"> <li><i>Primary Data Source:</i> original materials on which other research is based, such as survey data, focus group results, etc.</li> <li><i>Secondary Data Source:</i> describe, interpret, analyze and/or evaluate a primary source data. Public Health Data is considered to be any data valuable to public health - clinical, demographical, socio-economic, etc. Data that is collected can be data related to an individual or a population.</li> </ol> </li> <li>Public Health Data is considered to be any data and/or information related to clinical, demographic, access factors. This can also include socio-economic data. Generally, public health data may exist as any individual or population based data that is useful to and for public health practice.</li> </ul>
	<p><b>1. Identify Need for Data</b></p> <ul style="list-style-type: none"> <li>Chronic Disease Programs may collect data to clarify the burden of chronic diseases, identify the populations and areas most impacted, determine the impact of interventions, etc.</li> </ul> <p><b>2. Identify Data Requirements</b></p> <ul style="list-style-type: none"> <li>Determine what specific data are needed, the data format and how the data are to be used.</li> <li>Ensure that data are valid for addressing the chronic disease issue.</li> </ul> <p><b>3. Determine Data Sources</b></p> <ul style="list-style-type: none"> <li>Based upon the data needed and the data requirements, the Chronic Disease Program will identify what data sources are available for the data.</li> </ul> <p><b>4. Determine if Data are Accessible, 5. Data Accessible?</b></p> <ul style="list-style-type: none"> <li>If data are available for public access and consumption, then the Chronic Disease Program can obtain and use it.</li> <li>If data are not for public access or available, then the data must be captured. Capturing data from alternative or primary sources usually requires additional resources and/or funding.</li> </ul> <p><b>6. Review Sources for Specific Data</b></p> <ul style="list-style-type: none"> <li>When data are available for use, the Chronic Disease Program will access the appropriate sources. These sources could be websites, data source databases</li> </ul> <p><b>7. Collect Public Health Data</b></p> <ul style="list-style-type: none"> <li>Once the data are found, the Chronic Disease Program will collect and organize the data in the appropriate fashion.</li> </ul> <p><b>8. Data Management</b></p> <ul style="list-style-type: none"> <li>Once the data are collected, in most cases it will need to be adjusted and managed before analysis and interpretation.</li> </ul> <p><b>9. Request and Receive Resources / Funds</b></p> <ul style="list-style-type: none"> <li>data collection requires a lot of time and resources. Therefore, it is likely that a request will be needed to get these items.</li> <li>Some requests will require grants or contracts.</li> </ul>



Activity Details / Narrative	<p><b>10. Resources / Funding Received?</b></p> <ul style="list-style-type: none"> <li>Were the resources and/or funding received, either through an existing grant or alternative funding source, to aid in the retrieval of required data?</li> </ul> <p><b>11. Perform Data Gap Analysis</b></p> <ul style="list-style-type: none"> <li>If the resources and/or funding are not available, the Chronic Disease Program will perform a gap analysis to identify differences between data needed and the data available/ accessible and return to step 1. to adjust their plan.</li> </ul> <p><b>12. Determine if Institutional Review Board (IRB) Review is Required, 13. IRB Review Required?</b></p> <ul style="list-style-type: none"> <li>It is not necessary to request full IRB approval for data collection for public health practice purposes. If the data collection involves research activities in addition to public health practice, a full application for IRB approval must be made.</li> </ul> <p><b>14. IRB Review</b></p> <ul style="list-style-type: none"> <li>The Institutional Review Board receives the application with the proposal to gather data and reviews it to determine if it meets the IRB requirements.</li> </ul> <p><b>15. Determine if Data Exists, 16. Data Exists?</b></p> <ul style="list-style-type: none"> <li>The data needed may already be collected and accessible, e.g. Behavior Risk Factor Surveillance System. If the data needed exists, the next step is #19.</li> <li>If the data needed is not already being collected, a plan must be devised for how to obtain the data (step # 17)</li> </ul> <p><b>17. Design Appropriate Data Collection Process</b></p> <ul style="list-style-type: none"> <li>The Chronic Disease Program may decide to capture the needed data through primary data collection. They may choose to conduct focus groups, conduct surveys, and/or use a combination of existing data and data they collect.</li> <li>At the local level the existing data and data they collect may be generated through screening, outreach and/or case management.</li> </ul> <p><b>18. Execute Chronic Health Data Collection Process</b></p> <ul style="list-style-type: none"> <li>Data Collection may involve telephone surveys, direct interviews, chart reviews, etc.</li> <li>The data will need to be appropriately aggregated and possibly merged for analysis. Once completed, the data will then need to be exported to a data set.</li> </ul>
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Activity Details / Narrative

19. Develop Data Sharing Agreement

- If the needed data is already being collected and is available, the Chronic Disease Program will develop an agreement with the Data Steward in possession of the data to access and use it. This agreement is typically in the form of a Memorandum of Agreement (MOA).
- A Data Sharing Agreement is typically an inter-agency agreement for data use. In some cases, a fee may be required for use of the data.

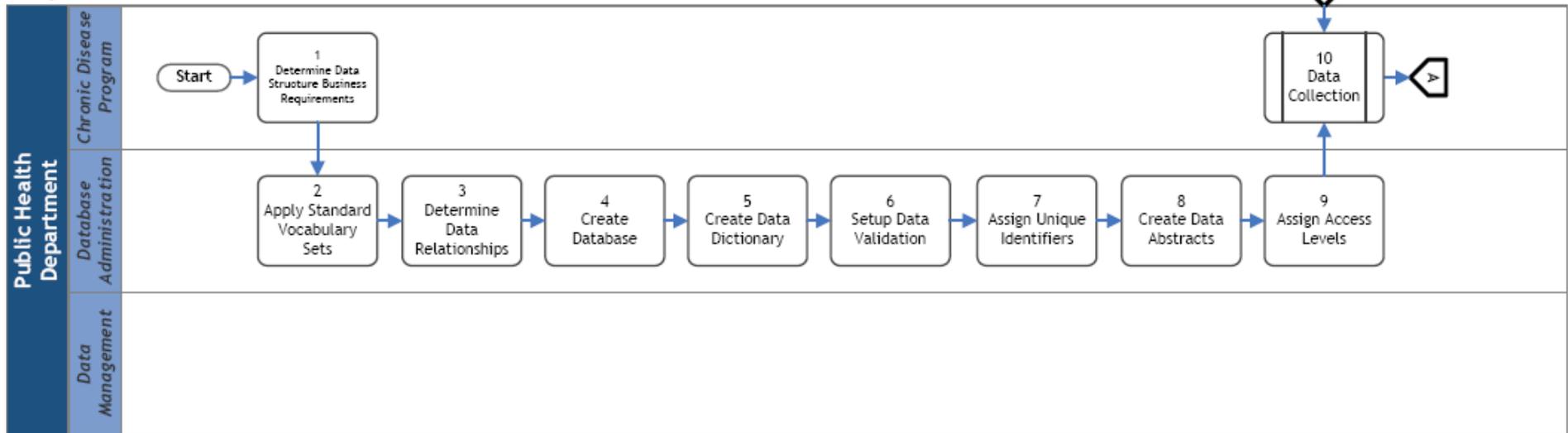
20. Provide Data to Chronic Disease Program

- Data are made available to the Chronic Disease Program in accordance with the Data Sharing Agreement or MOA.

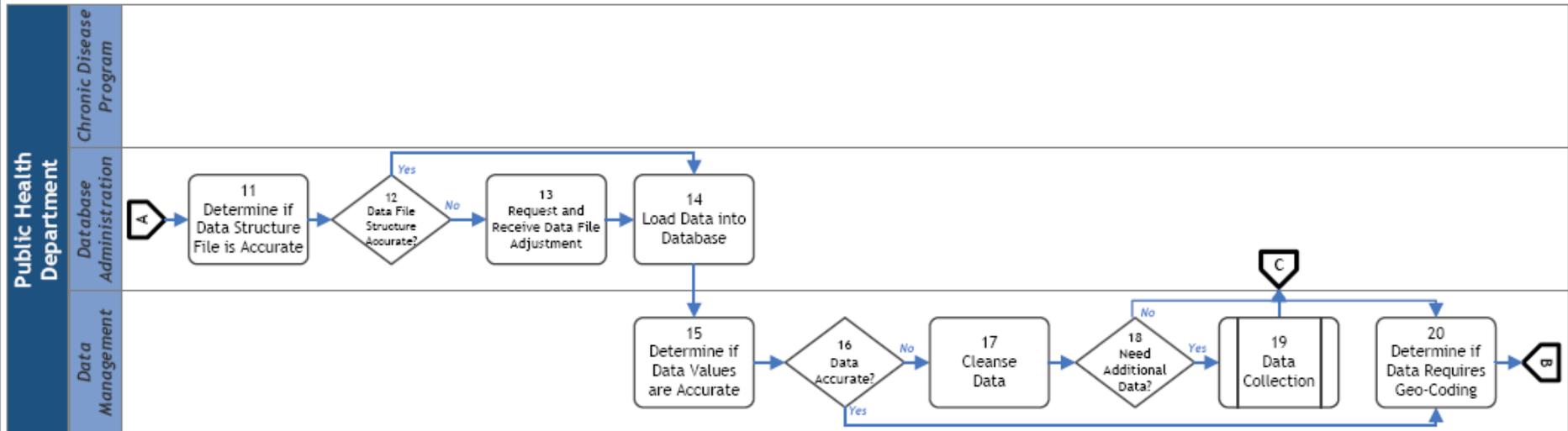
# Data Management

- Data Structure to meet Business Requirements
- Standard Vocabulary Sets
- Data Relationships
- Create Database
- Data Dictionary
- Data Validation
- Unique Identifiers
- Data Abstracts
- Access Levels
- Data File Structure Accuracy
- Load Data into Database
- Data Accuracy
- Cleanse Data
- Geocoding
- Deidentification

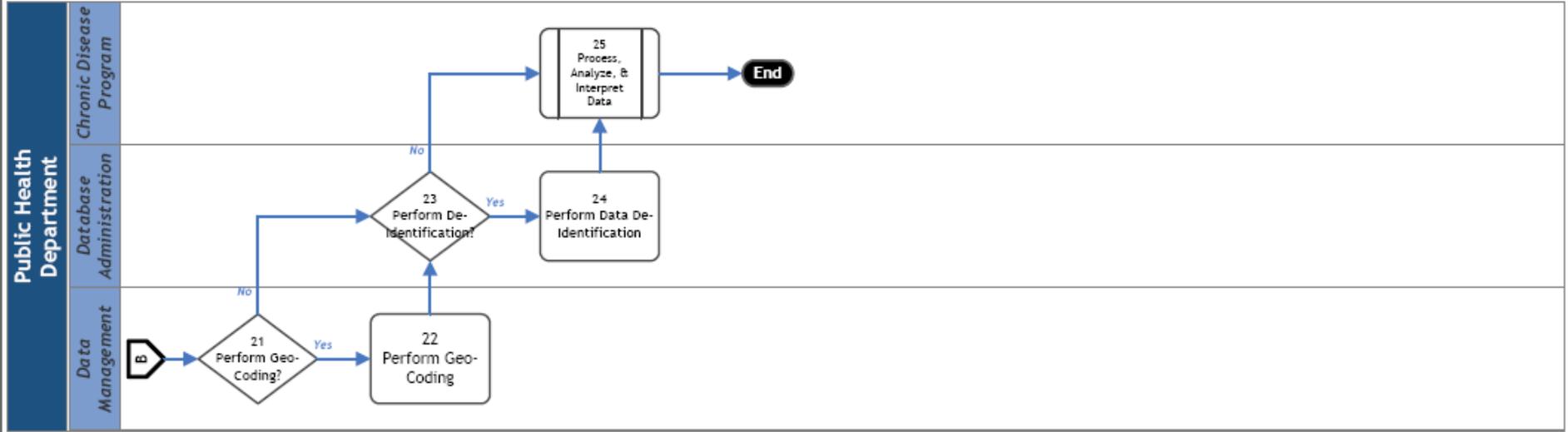




Activity Details / Narrative	<p><b>General Process Notes</b></p> <ul style="list-style-type: none"> <li>This business process includes 2 separate and distinct components; (1) Data structure setup (creating the data infrastructure and formatting to support incoming data) and (2) Data quality management (ensuring the data are accurate, complete, etc.)</li> <li>Public health data are collected in the <u>Data Collection</u> business process</li> <li>The functional roles for this business process are all carried out in the public health department. More than one role may be handled by the same person in some cases.</li> <li>The first set of activity (1-9) may not necessarily happen in this sequence or in this order.</li> <li>Data that is managed can be data related to an individual or a population.</li> <li>Public Health Data is considered to be any data and/or information related to clinical, demographic, access factors. This can also include socio-economic data. Generally, public health data may exist as any individual or population based data that is useful to and for public health practice.</li> </ul>	<ul style="list-style-type: none"> <li>The Chronic Disease Program will identify any preexisting reporting or other data requirements that may impact the data.</li> <li>The program staff will determine the types of analysis to perform on the data (e.g., whether to analyze all or part of the data geographically, frequency, percentages, incidence, prevalence, etc.) which parts are to be kept confidential, and what types of reports will result from the analysis.</li> </ul>	<p><b>5. Create Data Dictionary</b></p> <ul style="list-style-type: none"> <li>The data parameters are defined and described in a data dictionary. Descriptions include data field names (attributes), allowable values within the data field, data field type (string, Boolean, numeric), data validation rules, etc.</li> </ul>	<p><b>10. Data Collection</b></p> <ul style="list-style-type: none"> <li><u>Data Collection</u> involves the identification and gathering of public health data.</li> </ul>
	<p><b>1. Determine Data Structure Business Requirements</b></p> <ul style="list-style-type: none"> <li>The Chronic Disease Program describes data needed, sources of data, and sources of standardized codes (code sets) for the data.</li> <li>The Chronic Disease Program will estimate the number of records and frequency and mechanism for updates (i.e., will the data be manually entered annually or will it be an electronic transfer made automatically many times an hour?)</li> </ul>	<p><b>2. Apply Standard Vocabulary Sets</b></p> <ul style="list-style-type: none"> <li>The Database Administrator finds the most current version of the code sets that have been identified by the Program Group and determines how to incorporate them.</li> </ul>	<p><b>3. Determine Data Relationships</b></p> <ul style="list-style-type: none"> <li>The manner in which data will be stored in tables and how those tables will be linked (related) is decided upon and described.</li> </ul>	<p><b>6. Setup Data Validation</b></p> <ul style="list-style-type: none"> <li>Create rules to automatically check whether data is within predefined limits and format when it is entered. Validation checks may include value ranges, way information is recorded (i.e. numbers and not words), etc.</li> </ul>
<p><b>4. Create Database</b></p> <ul style="list-style-type: none"> <li>A database file is created to house and manage the public health data.</li> </ul>	<p><b>8. Create Data Abstracts</b></p> <ul style="list-style-type: none"> <li>Create the specifications for data types and set of operations that can be performed on the data.</li> </ul>	<p><b>9. Assign Access Levels</b></p> <ul style="list-style-type: none"> <li>Users of the data have varying levels of access, depending on their roles and security clearance for the data (e.g., some may be granted "view only" access and some will be able to edit the data).</li> </ul>		



<b>Activity Details / Narrative</b>	<p><b>11. Determine if Data Structure File is Accurate, 12. Data File Structure Accurate</b></p> <ul style="list-style-type: none"> <li>Make sure that the data file can be opened and that the fields (attributes) can be mapped to the structure established in the database.</li> </ul> <p><b>13. Adjust Data File Structure</b></p> <ul style="list-style-type: none"> <li>If the data file received has structural errors in it, corrections can be made. This is to ensure that it can be properly loaded to the database.</li> </ul> <p><b>14. Load Data into Database</b></p> <ul style="list-style-type: none"> <li>The file data are uploaded, imported and/or entered into the database.</li> </ul> <p><b>15. Determine if Data Values are Accurate, 16. Data Accurate?</b></p> <ul style="list-style-type: none"> <li>Quality Assurance (QA) determines if the data values are within the expected ranges, are properly formatted, and/or meet the data requirements for the Chronic Disease Program.</li> </ul>	<p><b>17. Cleanse Data</b></p> <ul style="list-style-type: none"> <li>Also called "Data Scrubbing" involves amending or removing data in a database that is incorrect, incomplete, improperly formatted, or duplicated.</li> <li>To correct data, the originators of the data may be contacted for clarification.</li> <li>Data that cannot be corrected are dealt with according to the business rules; it may be passed along marked or unmarked, or it may be thrown out.</li> </ul> <p><b>18. Need Additional Data?</b></p> <ul style="list-style-type: none"> <li>In some cases when data are found to be inaccurate or incomplete, collection of additional data may be necessary to meet the data requirements as defined.</li> </ul>	<p><b>19. Data Collection</b></p> <ul style="list-style-type: none"> <li><b>Data Collection</b> involves the identification and gathering of public health data.</li> </ul> <p><b>20. Determine if Data Requires Geo-Coding, 21. Perform Geo-Coding?</b></p> <ul style="list-style-type: none"> <li><b>Data Management</b> determines if the data needs to included Geo-Coding to meet data requirements and needs.</li> </ul>
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**Activity Details / Narrative**

**22. Perform Geo-Coding**

- Data is run through an application that will determine the spatial coordinates associated with the geographic information as determined in the business rules.

**23. Perform De-identification?, 24. Perform Data De-identification**

- If it has been determined that records need to be de-identified, a process is performed to ensure that the data complies with the confidentiality requirements.
- De-identification may involve changing the precision of the grouping of the data and/or hiding or eliminating certain fields (like name, SSN, etc.) from the dataset.

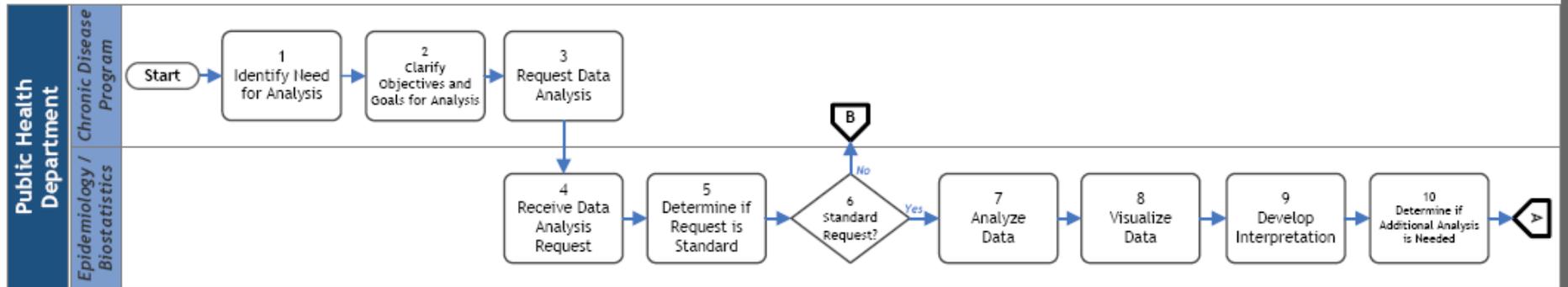
**25. Process, Analyze and Interpret Data**

- Once the data are appropriately set up, linked and secured, it can be used by the Chronic Disease Program.

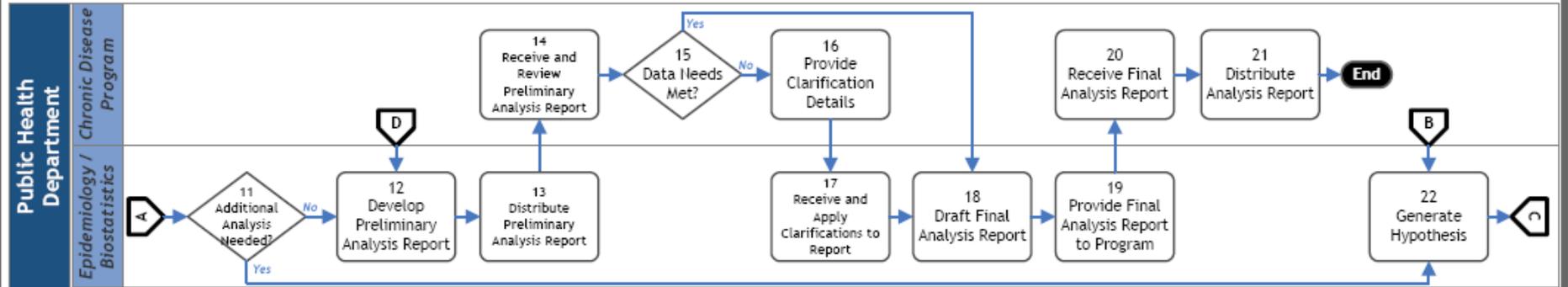
# Analyze, Process & Interpret Data

- ID need for analysis
- Objectives and goals for analysis
- Standard analysis
  - Analyze
  - Visualize
  - Interpretation
- Develop report
- Additional analysis
  - Generate hypothesis
  - Analysis plan
  - Descriptive analysis
  - Inferential analysis

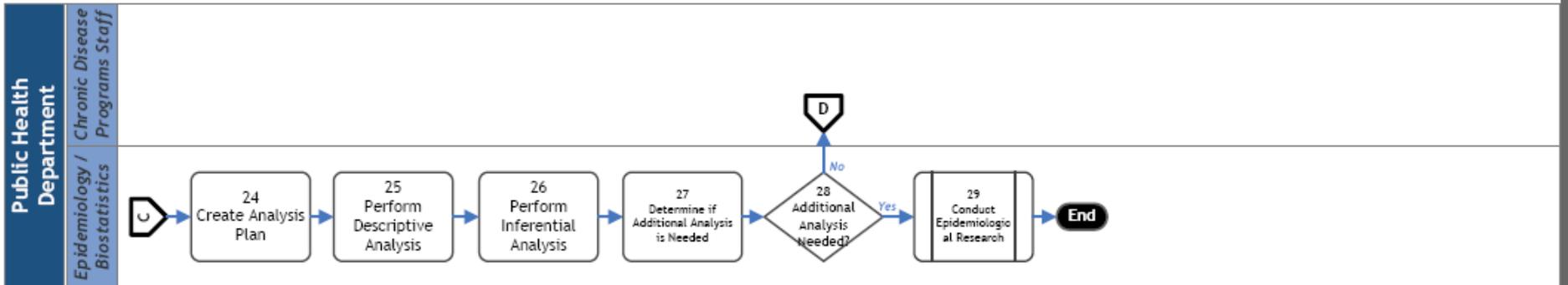




<b>Activity Details / Narrative</b>	<p><b>General Process Notes:</b></p> <ul style="list-style-type: none"> <li>The Epidemiology/Biostatistics functional role is responsible for the coordination and management of public health data. This group interacts with many different entities (e.g. subject matter experts, other public health organizations, academic institutions, software vendors, information technology department) in performing data analysis.</li> <li>Public Health Data is considered to be any data and/or information related to clinical, demographic, access factors. This can also include socio-economic data. Generally, public health data may exist as any individual or population based data that is useful to and for public health practice.</li> </ul> <p><b>1. Identify Need for Data Analysis</b></p> <ul style="list-style-type: none"> <li>A need for data analysis may be identified through a strategic plan objective, a mandate, and/or be done as a routine or regular task.</li> </ul> <p><b>2. Clarify Objectives and Goals for Analysis</b></p> <ul style="list-style-type: none"> <li>The Chronic Disease Program defines the goals and objectives for the data process, analysis, and interpretation to be performed.</li> </ul> <p><b>3. Request Data Analysis</b></p> <ul style="list-style-type: none"> <li>A request is made by the Chronic Disease Program to the Epidemiology/Biostatistics group to perform the data analysis. Clearly communicating the goals and objectives for the analysis is part of this step.</li> </ul> <p><b>4. Receive Data Analysis Request</b></p> <ul style="list-style-type: none"> <li>The request for data analysis is received by the Epidemiology/Biostatistics group to begin the appropriate set of activities.</li> </ul> <p><b>5. Determine if Request is Standard, 6. Standard Request?</b></p> <ul style="list-style-type: none"> <li>There are 2 general types of data analysis requests - standard and non-routine: (1) Standard = data analysis occurring on an ongoing, regular basis, (2) Non-routine = data analysis requests that are ad-hoc and come in on an "as-needed" basis.</li> </ul> <p><b>7. Analyze Data</b></p> <ul style="list-style-type: none"> <li>Analysis is performed by the epidemiologists and biostatisticians using calculations and methodology to produce outcomes that will address the requirements laid out in the objectives for the analysis.</li> </ul> <p><b>8. Visualize Data</b></p> <ul style="list-style-type: none"> <li>Visualizing the data and information involves displaying it in graphs, charts, tables, and diagrams that clarify the depiction of the data.</li> </ul> <p><b>9. Develop interpretation</b></p> <ul style="list-style-type: none"> <li>Inferences that can be drawn from the data and its analysis are developed by the epidemiologist and biostatisticians. They will determine what the data mean and what they don't mean.</li> </ul> <p><b>10. Determine if Additional Analysis is Needed</b></p> <ul style="list-style-type: none"> <li>The Epidemiology/Biostatistics group will determine if additional analysis is needed to meet the objectives and goals of the data analysis.</li> </ul>
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Activity Details / Narrative	Activity Details / Narrative	Activity Details / Narrative	Activity Details / Narrative
<p><b>11. Additional Analysis Needed?</b></p> <ul style="list-style-type: none"> <li>After initial analysis has been completed and the Epidemiologist / Biostatistics has reviewed the results, they will determine if further analysis is needed to meet the objectives and goals.</li> </ul>	<p><b>16. Provide Clarification Details</b></p> <ul style="list-style-type: none"> <li>If the Preliminary Data Analysis Report does not meet the objectives and goals for the analysis, the Chronic Disease Program will communicate the discrepancies and adjustments needed to the Epidemiologist.</li> </ul>	<p><b>21. Distribute Analysis Report</b></p> <ul style="list-style-type: none"> <li>The Chronic Disease Program will distribute the report to appropriate internal/external stakeholders, including the media, public, etc.</li> </ul>	<p><b>22. Generate Hypothesis</b></p> <ul style="list-style-type: none"> <li>If additional analysis is needed to provided a clearer picture of the data analysis and interpretation, the Epidemiologists will generate a hypothesis on what the analysis shows/ means.</li> </ul>
<p><b>12. Develop Preliminary Analysis Report</b></p> <ul style="list-style-type: none"> <li>If data analysis is complete, a Preliminary Analysis Report is developed. This report includes the analysis, visualization and interpretation of results.</li> </ul>	<p><b>17. Receive and Apply Clarification to Report</b></p> <ul style="list-style-type: none"> <li>The Epidemiological / Biostatistics group will receive the suggested changes and make the appropriate adjustments to the analysis and report.</li> </ul>		
<p><b>13. Distribute Preliminary Analysis Report</b></p> <ul style="list-style-type: none"> <li>The Preliminary Analysis Report is delivered to the Chronic Disease Program.</li> </ul>	<p><b>18. Draft Final Analysis Report</b></p> <ul style="list-style-type: none"> <li>A Final Analysis Report will be drafted by the Epidemiologist/Biostatisticians that includes the information requested by the Chronic Disease Program.</li> </ul>		
<p><b>14. Receive and Review the Preliminary Analysis Report</b></p> <ul style="list-style-type: none"> <li>The Preliminary Analysis Report is reviewed by the Chronic Disease Program to determine if it meets the objectives and goals of the analysis.</li> </ul>	<p><b>19. Provide Final Analysis Report to Program</b></p> <ul style="list-style-type: none"> <li>Distribute the Final Analysis Report to the Chronic Disease Program.</li> </ul>		
<p><b>15. Data Needs Met?</b></p> <ul style="list-style-type: none"> <li>Determine if the public health data needs were met through the analysis. If not, then clarification and adjust may need to occur.</li> </ul>	<p><b>20. Receive Final Analysis Report</b></p> <ul style="list-style-type: none"> <li>The Final Analysis Report is received by the Chronic Disease Program where it is reviewed and edited.</li> </ul>		



Activity Details / Narrative	<p><b>24. Create Analysis Plan</b></p> <ul style="list-style-type: none"> <li>Goals and objectives to address the data analysis needs for the new hypothesis are defined.</li> <li>An analysis plan is created by the Epidemiologists.</li> </ul> <p><b>25. Perform Descriptive Analysis</b></p> <ul style="list-style-type: none"> <li>Describe the basic features of the data using methods such as summary statistics (totals, percents, mean, median, etc.), graphs, charts, geocode maps, etc.</li> </ul> <p><b>26. Perform Inferential Analysis</b></p> <ul style="list-style-type: none"> <li>Using the data analysis, inferences are drawn that either prove or disprove the hypothesis.</li> </ul> <p><b>27. Determine if Additional Analysis is Needed, 28. Additional Analysis Needed?</b></p> <ul style="list-style-type: none"> <li>Once the appropriate descriptive and inferential analysis has been performed, determine if there is further analysis needed.</li> </ul> <p><b>29. Conduct Epidemiological Research</b></p> <ul style="list-style-type: none"> <li>Additional and deeper analysis may require the Chronic Disease Program to <u>Conduct Epidemiological Research</u>.</li> </ul>
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# Vital Records

Multiple Systems for different steps in the processes

Examples:

- Registration Systems (AVSS, EDRS) – Data Collection
- Death Edit Correction System – Data Management
- CDs and files for Data Distribution



# Vital Records

Organizational Units for different steps in the processes

Examples:

- Electronic Registration Unit – Data Collection
- IT Services Section – Data Management
- Office of Health Information and Research – Data Management & Analyze, Process and Interpret Data



# Value to CDPH

## Improved Management of Resources

- IT Non-Infrastructure Shared Services
- IT Infrastructure
- Agency Information Management Strategy
- Agency Enterprise Architecture
- IT Capital Plan



# Value to CDPH

Improved Presentation to the Web (*CDPH.CA.GOV*)

Improved Development of Shared Services

- Feasibility Study Reports
- Desktop Computing Standards

Improved Funding of Shared Services

- Integration grants (eg. Common Ground)
- Distributed funding (eg. GIS centralized tools)



# Charge

- Recommendations for use of Common Ground business process templates in CDPH
- Tasking to use Common Ground business process templates to develop evidence-base for improved information management in CDPH
- Endorsement of public health focus in the planning and implementation of information and IT management efforts (eg. ITCP, AEA, etc.)

