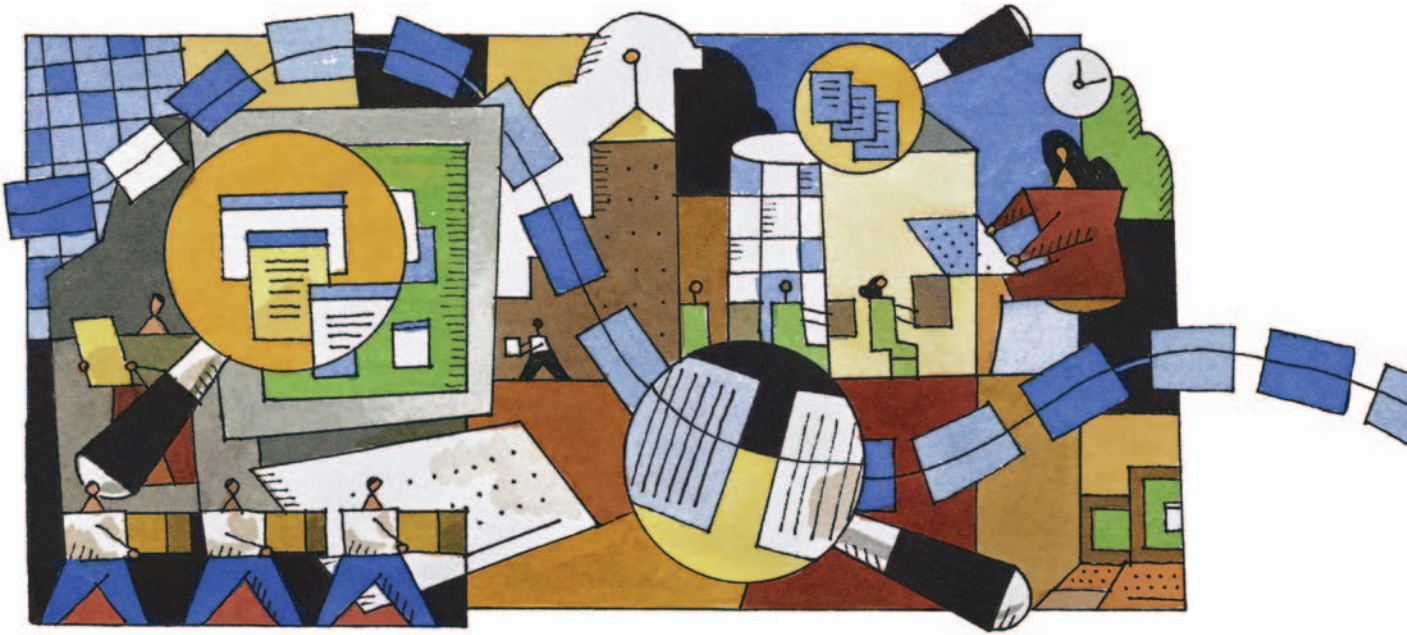


Taking Care of Business

A collaboration to define local health department business processes



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ABOUT PUBLIC HEALTH INFORMATICS INSTITUTE

The Public Health Informatics Institute is dedicated to advancing public health practitioners’ ability to strategically apply and manage information systems.

The Institute assists federal, state, and local public health agencies and other public health stakeholders that are grappling with information systems challenges.

Our services provide clarity about the information systems problems to be solved and identify the solutions to those problems.

The Public Health Informatics Institute is a component of The Task Force for Child Survival and Development.

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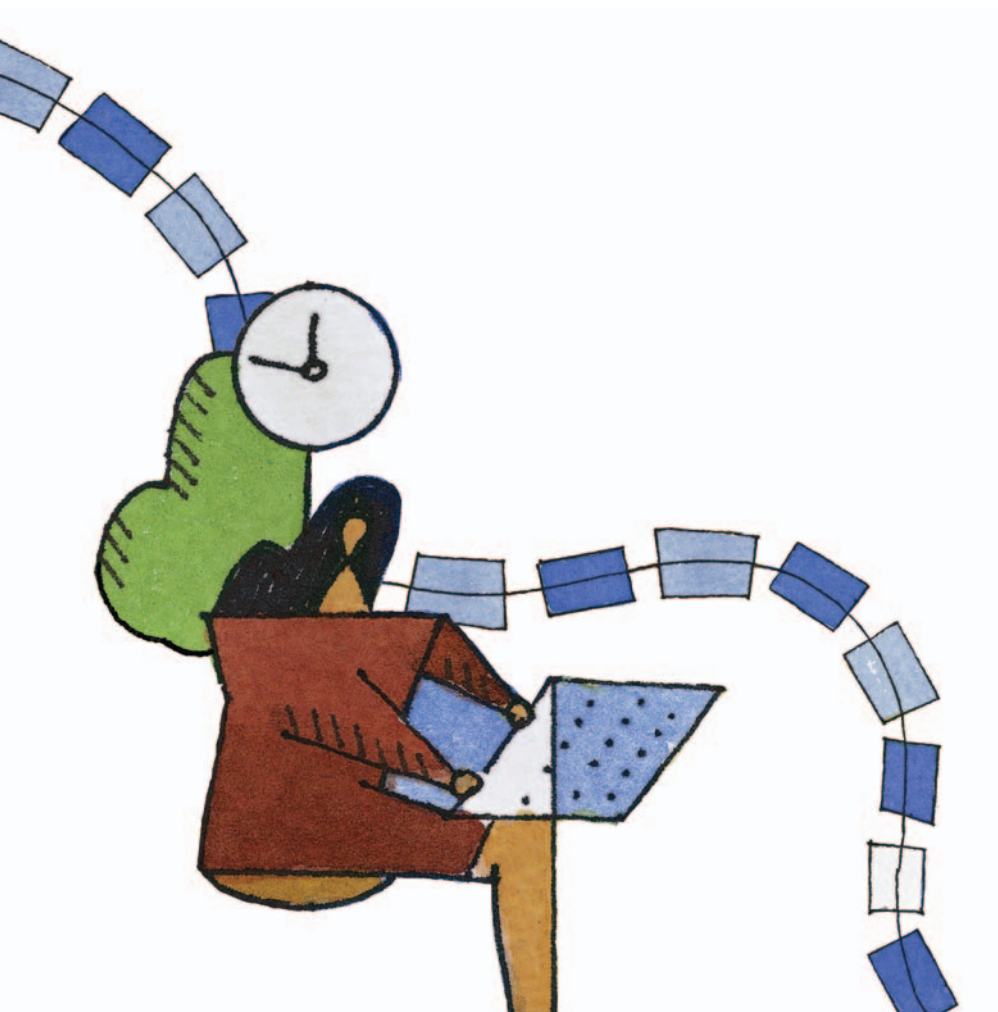
“ Recognizing the need
is the primary condition
for design. ”

– Charles Eames

Taking Care of Business

TABLE OF CONTENTS

INTRODUCTION	7
CHAPTER 1	The Story of the Collaboration to Define Local Health Department Business Processes 11
CHAPTER 2	Viewing Business Processes through Public Health Frameworks 19
CHAPTER 3	Business Processes of Local Health Departments 25
CHAPTER 4	Requirements Development: From Think to Rethink to Describe 33
CONCLUSION	47
APPENDIX A	Operational Definition of a Functional Local Health Department 49
APPENDIX B	Context Diagrams for Nine Business Processes of Local Health Departments 57
GLOSSARY	76
REFERENCES	79



Introduction

SAN ANTONIO: THE STARK FACE OF HUMAN NEED A CRISIS IS A TURNING POINT.

FERNANDO GUERRA, THE PHYSICIAN WHO, AS DIRECTOR OF HEALTH FOR THE SAN ANTONIO METROPOLITAN HEALTH DISTRICT, PRESIDED OVER THAT COMMUNITY'S RESPONSE TO HURRICANE KATRINA, REACHED A PERSONAL TURNING POINT IN HIS UNDERSTANDING OF THE CRISIS THAT OCCURRED WHEN THE FULL REALIZATION SETTLED IN OF THE DEGREE OF DEPRIVATION, OVER TIME, OF THE PEOPLE WHO HAD BEEN EVACUATED TO HIS AREA. JUST THROUGH HIS TEAM'S EMERGENCY RESPONSE EFFORTS, HE SAYS, "WE GAVE THEM MORE THAN THEY HAD BEFORE THEY LEFT."

"We put in a lot of long hours," Guerra allows. His role included overseeing the entire health operation from the emergency incident command center, where police, fire, mental health services, and leaders of other emergency services were headquartered.

Generally, Guerra had to make sure that resources and staffing were in place. He set up surveillance and disease tracking initiatives, interacted with a CDC group that arrived, and coordinated efforts with D-MAT (disaster medical assistance) teams brought in by FEMA. He helped arrange WIC vouchers for food for evacuees not fed in shelters, and he ensured that the right people received immunizations against hepatitis A, tetanus, diphtheria, and other childhood diseases.

Taking the long view

The health district director has a long list of suggestions for handling the next disaster. He seeks more comprehensive disease registries, more efficient triage procedures, and pre-fabricated clinical centers. He would like to see electronic prescribing, and perhaps even interoperable medical records.

"We have a lot to do," he concludes, although the Katrina episode has made him "a bit" more optimistic than before about the country's capacity to respond to a disaster.¹

—Excerpted from *Shelter from the Storm: Local Public Health Faces Katrina; Five Hurricane Stories*. (2006.) National Association of County and City Health Officials.

Information systems: Tools for extraordinary and ordinary times

As Dr. Fernando Guerra's story illustrates, local health departments (LHDs) across the country face extraordinary challenges in times of crisis, like Hurricane Katrina, and, as Dr. Guerra and many others recognize all too well, the activities of public health are highly complex. Information systems are critical tools to assist health departments' response to disasters such as Katrina, which involve many other local, state and federal governmental agencies, as well as health care organizations. State and local public health agencies must have timely, accurate, and appropriate information to effectively serve their communities, to promote health, and to make potentially life-saving decisions that protect the public from health threats.

These growing demands are forcing LHDs to look at their existing information systems and seek solutions in order to move forward. Currently, however, LHDs manage system application decisions (including identifying needs, solution selection, and implementation strategies) independently of each other. No long-term, shared strategy for achieving the vision of interoperable LHDs exists, nor does a formal process to collaborate on system application decisions.

This report describes the six-month project undertaken October 2005 - March 2006 by the National Association of County and City Health Officials (NACCHO) and the Public Health Informatics Institute (the Institute) to define the business processes—the sets of related tasks designed to produce a specific programmatic (business) result—that cut across all LHDs. Once defined, the business processes would provide the foundation for developing a base set of detailed information system requirements that would meet the needs of all LHDs and serve as a starting point for creating requests for proposals and contracts for building or buying new information systems. With requirements in hand, every LHD would not need to re-create the wheel when it comes to defining their information system needs.

What distinguishes this information systems project from other information systems projects undertaken in public health is its collaborative nature. The LHD Business Process Analysis project brought together the subject matter expertise of leaders from eight LHDs and one state association of LHDs who collectively represented LHDs across the country; the collaborative Requirements Development Methodology and informatics expertise of the Institute; and leadership from NACCHO and the NACCHO Information Technology Committee (now called the Informatics Committee). Like NACCHO's project to develop an operational definition for local health departments, this project was built on the premise that LHDs have more in common than not, that is, while each LHD has unique aspects, their activities are essentially the same.

Collaboratively defining the business processes of LHDs, however, creates common understanding that goes far beyond creating a tangible set of business process definitions. It stimulates understanding among staff internal to an LHD and with external partners about the work of public health. It encourages sharing of best practices within and across all LHDs, and it provides a foundation for quality improvement across all LHDs. Finally, it underscores the added value of collaboration: the recognition that whole is greater than the sum of its parts.

What distinguishes this information systems project from other information systems projects undertaken in public health is its collaborative nature.

CHAPTER 1 of this report describes the Collaboration to Define Local Health Department Business Processes and how it addressed the information systems problem of LHDs by building on the *Operational Definition of a Functional Local Health Department*. It explains why collaboration is essential to information systems development for LHDs and summarizes the three meetings of the work group that convened to define the LHD business processes (the LHD work group). It tells how this project transformed from a project to develop a “straw man” set of defined business processes that could then be reviewed and refined by other LHDs to a tool for long-term information systems transformation and a process improvement strategy. The stories of several work group members demonstrate how the methodology was applied within their own LHDs.

To assist in communicating the business processes to all LHDs and to establish a common frame of reference, the project was anchored conceptually in the frameworks that have been developed to describe the activities of public health. These include the 10 Essential Public Health Services, the *Operational Definition*, and frameworks developed by states and local public health agencies, such as the Minnesota Public Health Intervention Wheel.

Chapter 2 discusses how the LHD business processes relate to the various frameworks. Two charts show the similarities among the frameworks and how the business processes defined by the work group can be mapped to each framework.

CHAPTER 3 includes a discussion of the definition of a business process and its components. It describes some of the questions and concepts with which the LHD work group grappled as it worked to define LHD business processes, and the tools developed by the work group and the Institute to help them address the questions. The context diagrams for nine LHD business processes, showing the entities involved in each process and the transactions that occur among them, are included in Appendix B. A Business Process Matrix provides a useful comparative overview of the set of business processes.

Business process analysis produces a clear understanding of how the activities of LHDs are currently done, providing the foundation for the next steps in the Requirements Development Methodology: business process redesign and requirements definition. The work group took one business process through the entire Requirements Development Methodology, from context diagram to logical design.

Chapter 4 shows how a collaboration can “rethink” a business process, that is, redesign it, for greater effectiveness and efficiency, once there is a clear understanding of that process. Finally, with full understanding of how work should be done, they can then describe the requirements—statements that specifically describe the functionality to be supported. The progression through the Requirements Development Methodology is illustrated with examples of a context diagram, task flows, requirements definitions, and a logical design layout.

The **CONCLUSION** reports on the outcomes of this project. In January 2006, as the impact and potential consequences of the collaboration to define LHD business processes became understood, NACCHO’s Informatics Committee endorsed program actions supporting continued diffusion of the Requirements Development Methodology among LHDs.

Collaboratively defining business processes of LHDs creates common understanding that goes far beyond creating a tangible set of business process definitions. It stimulates understanding among staff internal to an LHD and with external partners about the work of public health.

NACCHO's 2006-2007 strategic plan included supporting LHD capacity to build public health information systems that perform in accordance with the *Operational Definition of a Functional Local Health Department*. The LHD work group supported ongoing diffusion of business process analysis training through LHD work group members, NACCHO, and the Institute.

This project has demonstrated that common understanding of the business processes of LHDs can be achieved through a collaborative approach – a giant step toward changing the paradigm of how public health develops its information systems. With continued education and skill development of the public health work force, the view that each public health agency must act alone to develop information systems is changing to one in which agencies act collaboratively to design systems that meet the needs of the majority of public health agencies and the public they serve.

This approach has staying power. Public health agencies have grasped the idea that business process analysis acts as a stimulus for quality improvement and leads to transformation of public health performance. They clearly recognize that, for information systems to support the objectives of public health agencies, the activities must be defined at the business process level and understood by all who participate in the processes. The growing recognition and understanding of business process analysis provides the springboard for quality improvement and consistent performance monitoring in public health agencies, and the foundation for effective health information systems.

Public health agencies have grasped the idea that business process analysis acts as a stimulus for quality improvement and leads to transformation of public health performance.

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- ¹ Excerpted from *Shelter from the Storm: Local Public Health Faces Katrina; Five Hurricane Stories*. (2006.) National Association of County and City Health Officials.

CHAPTER 1.

The Story of the Collaboration to Define Local Health Department Business Processes

The problem

In 2004, NACCHO launched a two-year project to provide an operational definition of a functional local health department. Recognizing that at the local level, government public health presence can take many forms and can comprise many individuals, public agencies, and private entities, its aim was to provide a shared understanding of the basic public health protections that people in any community, regardless of its governance structure—regardless of where specific authorities are vested, no matter where they live—can reasonably expect from their LHD. *The Operational Definition of a Functional Local Health Department*, released in November 2005, put forth 10 standards, framed around the 10 Essential Public Health Services, but reworded to more accurately reflect specific LHD roles and responsibilities related to each category.¹ (See Appendix A .)

Many LHDs are examining their existing information systems and seeking solutions that support the broad array of services described in the Operational Definition. Although data on LHD information systems efforts is limited, it indicates that they find the enormity and complexity of the task daunting.

In 2003, a survey of local health departments was conducted for the Turning Point National Excellence Collaborative on Information Technology, a component of the national Turning Point program supported by the Robert Wood Johnson Foundation.² Although conclusions were based on only 11% of the total 3,131 surveys sent to LHDs, the data highlighted the great diversity of information systems software used: “More than 500 software programs were referred to in 1500 ways” to support the 10 Essential Public Health Services.³

Public health culture allows us to work collaboratively, rather than competitively, to define business processes in a way that improves performance for all.

However, in a discussion of the findings, the report's authors conclude:

The needs reported by health departments primarily dealt with better equipment, training, and internet access. In some cases it seemed that the respondents had difficulty articulating their needs, in that they knew they wanted something better, but did not know what would be better. Both problems and needs were more often incremental and ad hoc in nature rather than encompassing a view of the total functions of a health department or public health in general.⁴

The survey also reports the great information technology needs of LHD administrative staff:

Keeping up with the rapidly changing technology is expensive, and limited budgets prevent keeping computers and software updated. There is a need for updated systems; both computers and software are outdated. The survey also reported needs for additional informatics training and IT staffing.⁵

It is clear that LHDs are currently struggling to develop public health information systems that meet their agencies' daily operational needs, let alone provide interconnectivity with other public health agencies and the health care system—functions that are critical to promoting and protecting the public's health. It is also evident that they do not have the resources to address these needs.

Collaborative Requirements Development: A new way of conceiving public health information systems

The Public Health Informatics Institute (the Institute) has developed a rational and cost effective methodology to assist public health agencies with their information systems needs. Its Requirements Development Methodology (Figure 1) brings together public health agencies to collaboratively think through the tasks that are performed to meet specific public health objectives (analyze their business processes), rethink the tasks to increase effectiveness and efficiency (redesign business processes), and describe what the information system must do to support those tasks (define system requirements).

Collaborative requirements development produces a well-conceived set of business processes and a set of information systems requirements based on those business processes that is common to all, but which can be tailored to meet individual agency needs. The methodology enables public health agencies to translate the requirements specifications into new information systems supporting the new way of doing business.

The Institute's collaborative Requirements Development Methodology uses concepts and approaches to information systems development that are standard in business and industry, but adds a unique component: collaboration. Collaboration is a natural strategy for developing information systems in a complex environment in which the organizations have more in common than not. As the *Operational Definition* illustrates, all LHDs engage in essentially the same activities. Developing solutions to information systems that support those common activities is logical and fiscally responsible.

In contrast to other approaches to information systems development that propose an iterative, "re-work, re-work" approach, collaborative requirements development is not a random walk.

– Pete Kitch

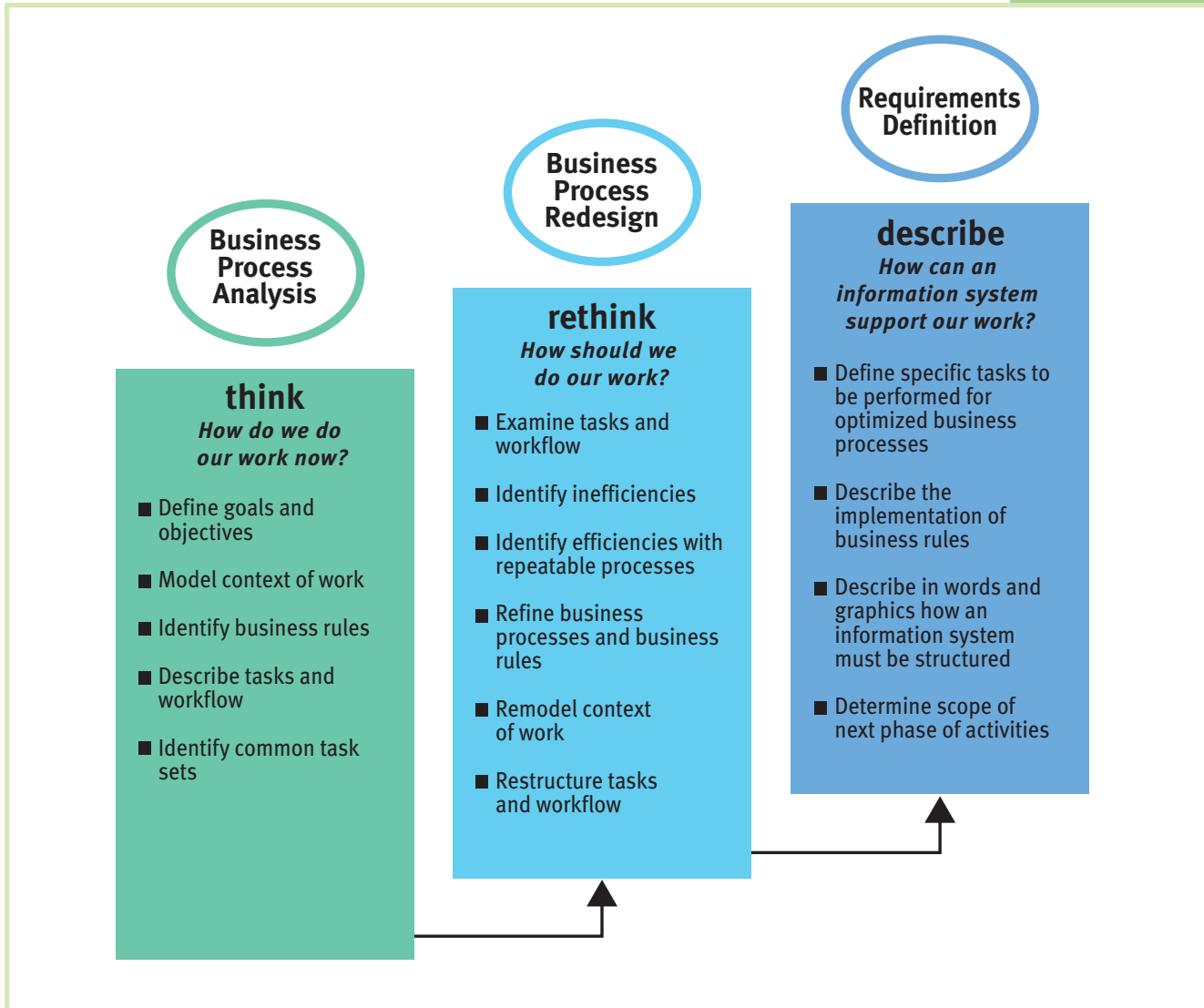


Figure 1: Public Health Informatics Institute Collaborative Requirements Development Methodology

The collaborative Requirements Development Methodology brings together public health agencies to collaboratively think through the tasks that are performed to meet specific public health objectives (analyze business processes), rethink the tasks to increase effectiveness and efficiency (redesign business processes), and describe what the information system must do to support those tasks (define system requirements).

The collaborative approach to requirements development in public health was used successfully with public health laboratories, which, under pressure to develop laboratory information management systems following the 2001 anthrax threats, needed a strategy to develop effective, cost-efficient information systems. In 2002-2003, a collaboration of public health laboratories, sponsored by the Association of Public Health Laboratories and facilitated by the Institute, developed requirements for laboratory information management systems that met the needs of all public health laboratories. As a result, public health laboratories were able to make informed “buy or build” decisions, and ensure the system’s interoperability with all state laboratories and federal agencies, as well as conformation to all national standards.

A collaboration to define LHD business processes

In June 2005, the Institute proposed to NACCHO leadership a six-month project to collaboratively develop a “straw man” set of defined LHD business processes. In September, work group members, NACCHO staff, and NACCHO IT Committee members attended a kick-off call to introduce Institute staff and answer any questions about the project’s charter, methodology, and products.

The LHD work group came together to define the business processes of LHDs in three intense, 3-day interactions in October 2005, December 2005, and March 2006. Although the

work group members were anxious from the first day to tackle the enumeration and definitions of their business processes, Institute staff began the October meeting by creating a common understanding of the rationale for the project, the Requirements Development Methodology, key informatics principles, the products that the collaboration would produce, and the benefits of the collaboration.

SHERRI McDONALD

DIRECTOR, THURSTON COUNTY PUBLIC HEALTH & SOCIAL SERVICES DEPARTMENT, WA

MEMBER OF THE LHD BUSINESS PROCESS ANALYSIS WORK GROUP

All public health agencies and health care organizations have policies addressing employees’ protection against risk of disease from workplace exposure, including ensuring that employees are appropriately immunized against infectious diseases, such as hepatitis B, influenza, measles, mumps, rubella, and varicella, and documenting vaccination status. But it’s easy for employees to fall through the cracks if the processes for ensuring immunizations aren’t clear.

Following the second meeting of the LHD business process analysis work group, Sherri McDonald returned to Thurston County, WA, convinced that what she had learned about analyzing business processes would also benefit her staff. She trained her six of her senior management team in a 2-1/2 hour session using the materials that the Public Health Informatics Institute had used to train the work group, with the objective of teaching them enough about business process analysis that they could understand and apply it in their own areas of work.

Nursing and administrative staff took what they had learned back to their regular team meetings and explained the skills of context diagramming and task flow analysis to their staff groups. They jointly identified the process of immunizing new employees as one in need of improvement, and in a relatively short time, the two groups were able to show how the work was done currently. Their analysis exposed problems with documentation of immunizations, role definition, and workflow, so they redesigned some of the tasks.

“Employee immunization is a process that all local health departments do, and we probably all do it differently,” explains Sherri. “But until now, we had never analyzed how we do it. Business process analysis helped to identify the intersecting roles and responsibilities, and the staff came up with a much better process as a result.” With approximately 25 to 30 new hires and temporary workers in need of immunizations each year, “a poorly designed process created a huge liability for the department,” she says. “Business process analysis helped us to improve that process and eliminate that risk.”

Business processes: Learning a new concept

“Business process” is a foreign term to most of the public health workforce. Indeed, even the word “business” is awkward to many. People who work at local, state, and federal public health agencies, and many of partner organizations in the community, are engaged in the business of public health—that is, providing the services that meet the public health objectives of their communities. That work, as described by the *Operational Definition of a Functional*

Local Health Department and frameworks such as the 10 Essential Services, is very broad.

A *business process* is a set of related work tasks designed to produce a desired programmatic (business) objective. The term may be confused with terms such as “business practices,” and “business rules.” Chapter 3 further discusses the definition of “business process” and other terms associated with the Requirements Development Methodology. A complete list of terms and their definitions is included in the Glossary.

Over the course of the project, LHD work group members came to understand the definition of a business process and its components, and to incorporate those terms into their everyday thinking about the work of LHDs. To initiate their understanding, the Institute business analyst led the work group through an exercise to describe a simple business process they all knew well. As a group, they talked through the different steps of how fast food is ordered, that is, the *transactions* (e.g., greeting, money exchanged, food delivered, etc.) among the participants (e.g., the customer, the order taker, the cook, etc.). At the end of the “Freddie’s Flippers” exercise, they understood the *components* of a business process. This exercise is described in detail in Chapter 4.

The work group learned that the ordering process is the same—with minor adjustments—no matter what kind of fast food is being produced and sold—pizzas, hamburgers, burritos, etc. In public health, this might be compared to a customer-initiated request for health-related services or supplies at a clinic. They also understood that fast food restaurants have multiple business processes, such as marketing (how you promote the business), inventory (how you order supplies for the business), and quality assurance (how you assure adherence to quality standards), that are more alike than different, regardless of the restaurant’s location, its volume, or what kind of food it is selling. Similarly, LHDs’ business processes are more alike than not.

A huge task tackled collaboratively

The goal of the LHD workgroup was to define the business processes of LHDs, but, from the outset, they asked, How many will there be? When will we know we are done? Most businesses have just a few business processes, but after enumerating over 100 LHD business processes and recognizing the enormity of describing all of them, the work group decided to focus on a representative set of business processes.

The work group continued through the December and March meetings to define and draw context diagrams for the nine LHD business processes listed in Figure 2. They grappled with understanding the components of business processes and several difficult concepts: How do the business processes relate to the frameworks that describe their work, such as the *Operational Definition* and 10 Essential Public Health Services? What are the boundaries of a business process? What is the difference between a business process and a task? With Institute staff assistance, they developed tools to help answer these questions. The tools are described in Chapter 3.

Grounded in reality

Guided by Institute staff, the LHD work group enumerated a draft list of business processes, and, to challenge it, solicited input from their staffs. The work group members then worked collaboratively to define identified processes, bringing not only their own different experiences and perspectives to bear on the same problem, but also those of the subject matter experts from their agencies, e.g., the nurses who administer immunizations, the inspectors who visit restaurants, the epidemiologists investigate outbreaks, etc. These addi-

- Billing and Accounts Receivable
- Communicable Disease and Clinical Intervention & Treatment
- Community Health Assessment
- Environment & Safety Inspections
- Field Nursing
- Grantee Administration
- Grantor & Contractee Administration
- Immunization Administration
- Pricing

Note: Context diagrams for the nine business processes are included in Appendix B.

Figure 2:
LHD business processes defined in this project

tional perspectives grounded the definitions firmly in the reality of public health practice, prompted discussion with staffs about how to improve existing processes, and brought value to the definitions.

ART DAVIDSON

DIRECTOR, PUBLIC HEALTH INFORMATICS, DENVER PUBLIC HEALTH
MEMBER OF THE LHD BUSINESS PROCESS ANALYSIS WORK GROUP

Training in business process analysis came at just the right time for Art Davidson, Director of Public Health Informatics at Denver Public Health. As principal investigator for a State and Regional Demonstration Project to promote health information exchange, he was looking for a way to get public health involved in the Colorado Health Information Exchange. His LHD had a vision to link public health with the Colorado Health Information Exchange to achieve bidirectional information flow that promotes, improves, and protects the population's health. Around the same time, he became involved in the work group to describe the business processes of LHDs. Funded by multiple grants, including a Robert Wood Johnson Foundation InformationLinks grant focused on connecting public health to health care, the COHIE project began planning how to bring together public health and other health care partners from throughout the state to achieve their vision.

What was missing, recalls Art, was a common understanding of how a health information exchange could create value for all the partners. He explains, "We asked ourselves, How can this create value, not just to public health, but for all the entities that might need a population-based perspective—a doctor looking at his or her practice, an insurer or payer wanting to know about services for their covered lives, a health services researcher or a public health official about the population in the appropriate jurisdiction?"

Business process analysis provides the foundation for that understanding by giving them tools to model and visually share their perception of the business processes involved in their work. With an explicit visual model, all the participants can reassess how the health information exchange could make information flow better for them and their stakeholders. The LHD work group held numerous discussions about not "repaving winding cow paths," that is, not making the mistake of building an information system that automates a poorly defined business process. Business process analysis, says Art, "helped us to ask, What is it that we want to achieve? What are our collective needs, and what are the available inputs and expected outputs? Then, it allows the community to think how the health information exchange might allow them to create 'straighter roads,' or even find new, highly efficient modes (e.g., 'a helicopter') and develop more effective and logical methods to achieve the same business outcomes."

Lynn Dierker, Director for Community Initiatives with the Colorado Health Institute, was among the team that Art trained when he brought back what he had learned about business process analysis to the project. "I had an inkling of what business process analysis was all about," says Lynn, "but it took time to get our heads around how to relate it to a multi-sector group [the health information exchange]. You have to do it to understand it." The outcome of the training, says Lynn, was "heightened communications among the members of the team and a connection between our vision and how information systems will get us there."

More than a set of definitions

The LHD work group collectively agreed that the outcome of their project should be much more than a set of definitions. Articulating the components of each business process and representing them graphically had led to a much deeper collective understanding of the work of LHDs: they had made explicit what each of them knew about their business processes, learned how other LHDs do the same processes, and gained insight into how they might improve their own. As one work group member commented, the explicit descriptions and graphical representations made the work of their LHD "visible" and provided them a powerful tool to increase the understanding about the work of LHDs among their health department staffs and partners.

The project achieved its objective of increasing the work group's understanding of why business process analysis is the first step of the Requirements Development Methodology: requirements definitions for information systems that support work cannot be developed until the work of LHDs is clearly defined. Dave Ross, Institute director, noted, "We can't service the business processes until we know them."

Although the original goal of the project was to produce a "straw man"

list of all LHD business processes and not delve deeply into successive steps of the Requirements Methodology, the LHD work group desired an understanding of the complete

methodology. At the final meeting, they devoted a day to working one LHD business process through the entire Requirements Development Methodology, from business process analysis to process redesign to requirements definition. By the end of the project, work group members and NACCHO leadership saw ways in which understanding business processes of LHDs would lead to quality improvement and consistent performance monitoring across all LHDs.

Taking business process analysis back home

LHD work group members recognized that their understanding of business process analysis had attained a level such that they could facilitate their own health department staffs to analyze the business processes within their own units, departments, and divisions, and across their organizations. The stories from several of the LHD work group members who reported to the work group on the impacts of teaching their staffs to analyze business processes are included in this chapter.

TORNEY SMITH

ADMINISTRATOR, SPOKANE REGIONAL HEALTH DISTRICT, WA

MEMBER OF THE LHD BUSINESS PROCESS ANALYSIS WORK GROUP

Unlike other approaches to requirements development, business process analysis is not a random walk. Spokane Regional Health District Administrator Torney Smith found the stepwise approach was a powerful tool to assist with the strategic planning and budget prioritization of his agency. He says, "It provided a way to think logically about what we do every day."

Torney introduced his division directors to the skills of business process analysis following the second LHD work group meeting as a way to assist them with their strategic planning. He walked his senior staff through an overview of context diagramming and, as a group, they conducted the exercise to analyze the business process of ordering food at a fast food restaurant, order fulfillment, just as the work group had. "Everyone identified with that process," he says.

Context diagramming provided a tool for each of the division directors, who are defining criteria for budget prioritizations, to identify where they might be more efficient. "It is helping us see the commonalities across divisions, as well as the redundancies," explains Torney.

Torney's managers within the administrative division recognize the utility of business process analysis to help them communicate with the entire agency about "what they do, how they do it, and who they do it with," says Torney. "It is helping us to be cohesive and consistent in our thinking."

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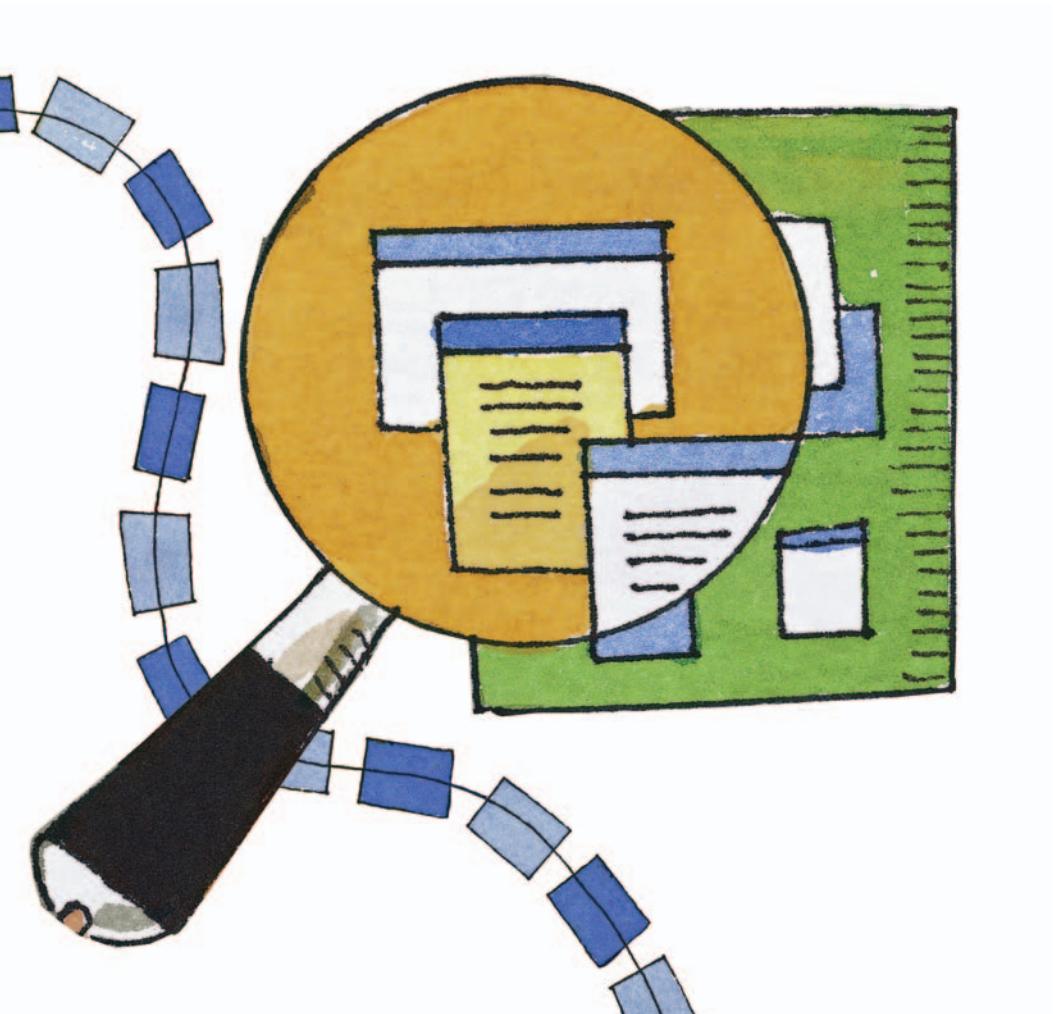
¹ National Association of County and City Health Officials (2005).

² The Turning Point program was supported by the Robert Wood Johnson Foundation to transform and strengthen the public health system in the United States by making it more community-based and collaborative.

³ Burke & Evans (2003), p. 29.

⁴ Burke & Evans (2003), p. 30.

⁵ Burke & Evans (2003), p. 27.



CHAPTER 2.

Viewing Business Processes through Public Health Frameworks

Each local public health department is distinctive in that it is charged with meeting the unique needs of the community that it serves. Yet, there remains an expectation that every local public health department is as good as the next in terms of quality and the ability to meet public health standards.

The Institute of Medicine's Core Public Health Functions,¹ the 10 Essential Public Health Services,² and most recently, as described in the Introduction, NACCHO's *Operational Definition of a Functional Local Health Department*, all articulate a conceptual framework for public health activities. In addition, many state and local health jurisdictions have their own frameworks through which they organize their work.

The ability to categorize the work of public health to an accepted and proven model of public health enables public health management and administration to determine whether services, treatment, and activities are in alignment with the accepted standards of public health.

Since frameworks are designed to address the diverse nature of different local public health departments, there is a natural tendency for those that work within LHDs to view the work of their organization as significantly different from the work performed by organizations framed under different models. But it is important to note that frameworks are typically developed with reference to the Core Public Health Functions. For that reason, it is logical to expect an alignment between different frameworks, and hence, a certain level of similarity between the work of the respective public health organizations.

Each LHD work group member was interested in organizing the LHD business processes around the framework that guides their department's work. For instance, the Minnesota Health Department uses the *Public Health Intervention Wheel*³ as a model and guideline for service delivery, while the Thurston County, WA, system uses the 10 Essential Public Health Services as its standard.

Table 1 depicts four public health frameworks identified and used by the LHD work group members. The table shows the Core Public Health Functions—Assessment, Policy Development, and Assurance—as the baseline framework. Each column contains a list of the framework’s sub-categories, grouped according to the core function it supports. Each of the sub-categories of the 10 Essential Public Health Services and the Operational Definition frameworks fits easily into one of the Core Functions. However, in the case of the Intervention Wheel, the sub-categories—or types of interventions—may have multiple Core Function applications. For example, the “delegated function” intervention, which describes the role played by nursing or public health staff, correlates with the Assessment, Assurance, and Policy Development Core Functions.

FRAMEWORK	CORE FUNCTIONS OF PUBLIC HEALTH	10 ESSENTIAL PUBLIC HEALTH SERVICES
Developed or Sponsored by	The Institute of Medicine, 1988.	The Core Public Health Functions Steering Committee under the sponsorship of the U.S. Department of Health & Human Services, 1994.
Purpose and Intended Uses	To provide an infrastructure designed to prevent disease and injury, and promote health.	To provide a working definition of public health and a guiding framework for the responsibilities of local public health systems.
Areas of Classification	<p>Assessment Assessment and monitoring of the health of communities and populations at risk to identify health problems and priorities.</p> <hr/> <p>Policy Development Formulating public policies, in collaboration with community and government leaders, to solve identified local and national health problems and priorities.</p> <hr/> <p>Assurance Assuring that all populations have access to appropriate and cost-effective care, including health promotion and disease prevention services, and evaluation of the effectiveness of that care.</p>	<p>1. Monitor health status to identify and solve community health problems.</p> <hr/> <p>2. Diagnose and investigate health problems and health hazards in the community.</p> <hr/> <p>3. Give people information they need to make healthy choices.</p> <hr/> <p>4. Engage the community to identify and solve health problems.</p> <hr/> <p>5. Develop public health policies and plans that support individual and community health efforts.</p> <hr/> <p>6. Enforce laws and regulations that protect health and ensure safety.</p> <hr/> <p>7. Link people to needed personal health services and ensure the provision of health care when otherwise unavailable.</p> <hr/> <p>8. Assure competent public and personal health care workforce.</p> <hr/> <p>9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.</p> <hr/> <p>10. Research for new insights and innovative solutions to health problems.</p>

OPERATIONAL DEFINITION OF A FUNCTIONAL LOCAL HEALTH DEPARTMENT

PUBLIC HEALTH INTERVENTION WHEEL

National Association of County and City Health Officials (NACCHO), 2005.

Minnesota Department of Health, 2001.

To provide:

- (1) accountability for LHDs to the publics they serve and to the governing bodies to which they report.
- (2) a means to clarify LHD roles/responsibilities with respect to the core public health functions and the 10 essential services.

Also known as the "Intervention Model"; Defines the scope of public health nursing practice by type of intervention and level of practice (systems, community, individual/family). The model represents public health nursing as a specialty practice of nursing. However, these interventions are also used by other public health disciplines.

- a. Obtain & maintain data that provide information on the community's health.
- b. Develop relationships with local providers and others in the community who have information.
- c. Conduct or contribute expertise to periodic community health assessments.
- d. Integrate data with health assessment and data collection efforts.
- e. analyze data to identify trends, health problems, environmental health hazards, and social and economic conditions that adversely affect the public's health.

- Surveillance
- Screening
- Delegated Functions
- Coalition Building
- Community Organizing

- a. Investigate health problems and environmental health hazards.
- b. Prevent, minimize, and contain adverse health events and conditions.
- c. Coordinate with other governmental agencies that investigate and respond to health problems, disparities, or environmental health hazards.
- d. Lead public health emergency planning, exercises, and response activities.
- e. Fully participate in planning, exercises, and response activities for other emergencies.
- f. Maintain access to laboratory and biostatistical expertise and capacity to help monitor community health status, and diagnose and investigate public health problems and hazards.
- g. Maintain policies and technology required for urgent communications and electronic data exchange.

- Disease & Health Event Investigation
- Coalition Building
- Advocacy
- Community Organizing
- Policy Development & Enforcement

- a. Develop relationships with the media to convey information of public health significance, correct misinformation about public health issues, and serve as an essential resource
- b. Exchange information and data with individuals, community groups, other agencies, and the general public
- c. Provide targeted, culturally appropriate information to help individuals understand what decisions they can make to be healthy
- d. Provide health promotion programs to address identified health problems

- Outreach
- Health Teaching
- Consulting
- Coalition Building
- Advocacy
- Policy Development & Enforcement
- Referral & Follow-up
- Counseling
- Collaboration
- Community Organizing
- Social Marketing

- a. Engage the local public health system in an ongoing, strategic, community-driven, comprehensive planning process to identify, prioritize, and solve public health problems; establish public health goals; and evaluate success in meeting the goals.
- b. Promote the community's understanding of, and advocacy for, policies and activities that will improve the public's health.
- c. Support, implement, and evaluate strategies that address public health goals in partnership with public and private organizations.
- d. Develop partnerships to generate interest in and support for improved community health status.
- e. Inform the community, governing bodies, and elected officials about governmental public health services that are being provided, improvements being made, and priority health issues not yet being adequately addressed.

- Health Teaching
- Referral and Follow-up
- Coalition Building
- Community Organizing
- Advocacy
- Social Marketing
- Policy Development & Enforcement

- a. Serve as a primary resource to governing bodies and policymakers to establish and maintain public health policies, practices, and capacity based on current science and best practices.
- b. Advocate for policies that lessen health disparities and improve physical, behavioral, environmental, social, and economic conditions in the community that affect the public's health.
- c. Engage in LHD strategic planning to develop a vision, mission, and guiding principles that reflect the community's public health needs, and to prioritize services and programs.

- Delegated Functions
- Community Organizing
- Social Marketing
- Coalition Building
- Advocacy
- Policy Development & Enforcement

- a. Review existing laws and regulations and work with governing bodies and policy-makers to update them as needed.
- b. Understand existing laws, ordinances, and regulations that protect the public's health.
- c. Educate individuals and organizations on the meaning, purpose, and benefit of public health laws, regulations, and ordinances and how to comply.
- d. Monitor, and analyze over time, the compliance of regulated organizations, entities, and individuals.
- e. Conduct enforcement activities.
- f. Coordinate notification of violations among other governmental agencies that enforce laws and regulations that protect the public's health.

- Referral and Follow-up
- Collaboration
- Coalition Building
- Advocacy
- Policy Development & Enforcement

- a. Engage the community to identify gaps in culturally competent, appropriate, and equitable personal health services, including preventive and health promotion services, and develop strategies to close the gaps.
- b. Support and implement strategies to increase access to care and establish systems of personal health services, including preventive and health promotion services, in partnership with the community.
- c. Link individuals to available, accessible personal healthcare providers (i.e., a medical home).

- Outreach
- Case Management
- Community Organizing
- Social Marketing
- Referral & Follow-up
- Delegated Functions
- Advocacy

- a. Recruit, train, develop, and retain a diverse staff.
- b. Evaluate LHD staff members' public health competencies, and address deficiencies through continuing education, training, and leadership development activities.
- c. Provide practice- and competency-based educational experiences for the future public health workforce, and provide expertise in developing and teaching public health curricula, through partnerships with academia.
- d. Promote the use of effective public health practices among other practitioners and agencies engaged in public health interventions.
- e. Provide the public health workforce with adequate resources to do their jobs.

- Health Teaching
- Case Management
- Collaboration
- Coalition Building

- a. Develop evaluation efforts to assess health outcomes to the extent possible.
- b. Apply evidence-based criteria to evaluation activities where possible.
- c. Evaluate the effectiveness and quality of all LHD programs and activities and use the information to improve LHD performance and community health outcomes.
- d. Review the effectiveness of public health interventions provided by other practitioners and agencies for prevention, containment, and/or remediation of problems affecting the public's health, and provide expertise to those interventions that need improvement.

- Consultation
- Collaboration
- Community Organizing
- Social Marketing

- a. When researchers approach the LHD to engage in research activities that benefit the health of the community. (i) Identify appropriate demographics (ii) Work with them to actively involve the community (iii) Provide data and expertise and (iv) Facilitate their efforts to share research findings with others.
- b. Share results of research, program evaluations, and best practices with other public health practitioners and academics.
- c. Apply evidence-based programs and best practices where possible.

- Case Management
- Consultation
- Coalition Building
- Community Organizing
- Social Marketing

Table 1: Comparison of public health frameworks used by LHDs

“Business process analysis gives you the tools to do what’s in the Operational Definition.”

– Judy Seltzer, Reno County, KS

Through discussion of the framework crosswalk, the LHD work group reached agreement that although the work of their LHDs may be organized around different frameworks, their activities are more alike than not. In other words, they have common ground. This realization was demonstrated by categorizing the representative business processes described by the work group according to the four public health frameworks shown in Table 1. Table 2 represents the crosswalk of the business processes and frameworks. This table also demonstrates that the selected business processes, although not the complete set of business processes for an LHD, are representative of the breadth of public health.

REFERENCES

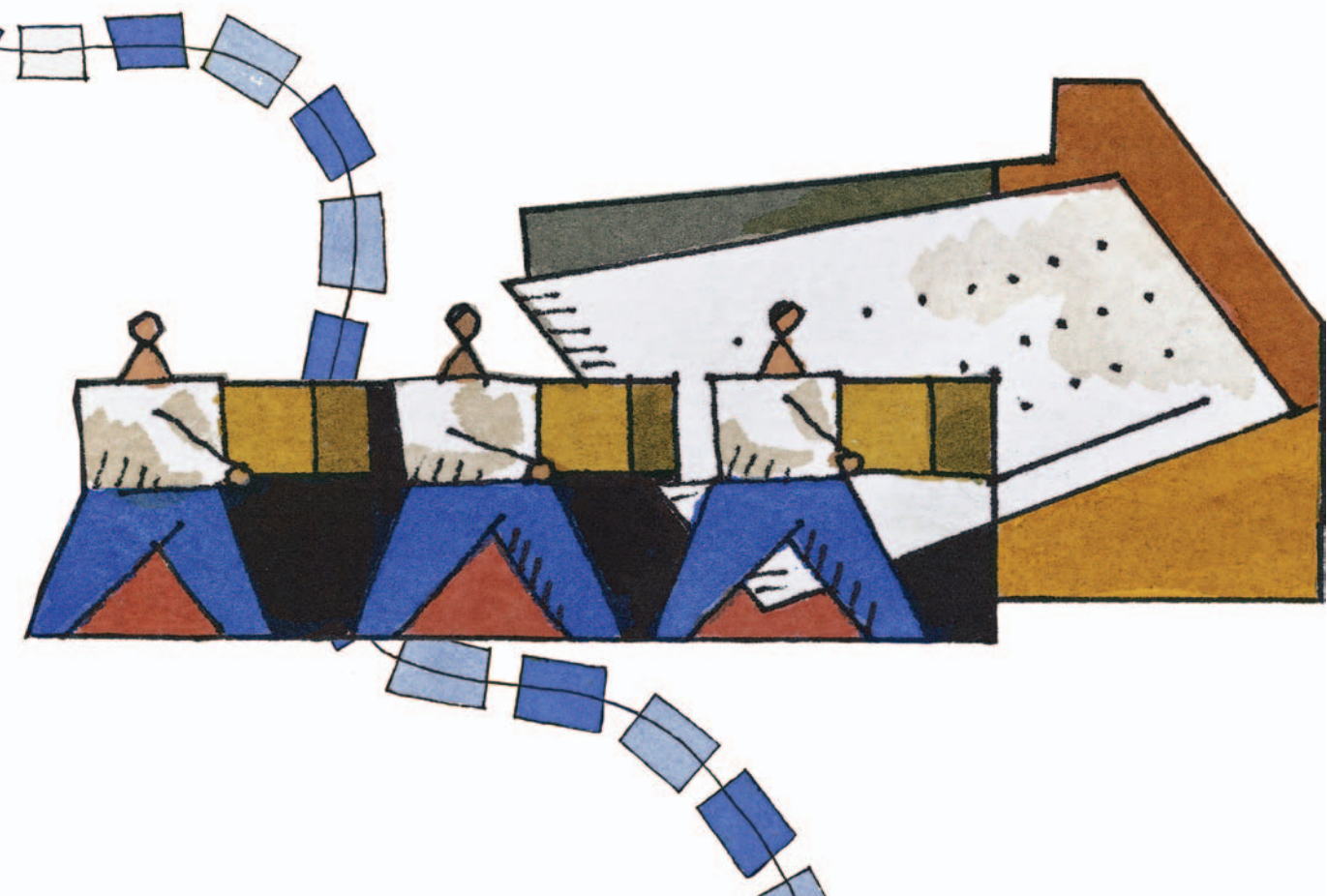
¹ Institute of Medicine.

² Public Health Functions Steering Committee.

³ Minnesota Department of Health.

BUSINESS PROCESS	CORE FUNCTIONS	10 ESSENTIAL SERVICES	OPERATIONAL DEFINITION	INTERVENTION WHEEL	
Billing & Accounts Receivable	Assurance	6. Enforce laws and regulations 7. Link people to needed services 8. Assure competent workforce	6d 7b 8e	–Coalition Building –Advocacy –Policy Development & Enforcement	
Communicable Disease and Clinical Intervention & Treatment	Assessment Policy Development Assurance	2. Diagnose and investigate 3. Inform, educate, and empower 7. Link people to needed services	2a,b,e 3b,c,d 7c	–Screening –Case Finding –Case Management –Health Teaching –Consulting –Policy Development & Enforcement	–Outreach –Referral & Follow-up –Delegated Functions –Counseling –Coalition Building –Disease & Health Investigation
Community Health Assessment	Assessment	1. Monitor health status 2. Diagnose and investigate 3. Inform and educate	1a,b,c,d,e 2f,g 3b,c	–Surveillance –Disease & Health Investigation –Policy Development & Enforcement	
Environmental & Safety Inspections	Assessment Policy Development Assurance	1. Monitor health status 2. Diagnose and investigate 3. Inform educate and empower 4. Mobilize community partnerships 6. Enforce laws and regulations 8. Assure competent workforce	1a,b 2a,b,c,e 3a,b 4c,d,e 6b,c,d,e,f 8a,b,c,d,e	–Disease & Health Investigation –Referral & Follow-up –Case Management –Health Teaching –Counseling –Consulting –Coalition Building –Policy Development & Enforcement	
Field Nursing	Assessment Policy Development Assurance	2. Diagnose and Investigate 3. Inform educate and empower 7. Link people to needed services	2a,b,e 3b,c,d 7c	–Screening –Case Finding –Case Management –Health Teaching –Consulting –Policy Development & Enforcement	–Outreach –Referral & Follow-up –Delegated Functions –Counseling –Coalition Building –Disease & Health Investigation
Grantee Administration	Assessment Policy Development Assurance	1 Monitor health status 2 Diagnose and investigate 3 Inform educate and empower 4 Mobilize community partnerships 5 Develop policies and plans 9 Evaluate health services 10 Research	1b 2c,e 3b 4a,b,c,d 5c 6c,d 9c 10c	–Collaboration –Coalition Building –Community Organizing –Advocacy –Social Marketing –Policy Development & Enforcement	
Grantor & Contractee Administration	Assessment Policy Development Assurance	1. Monitor health status 2. Diagnose and investigate 3. Inform, educate, and empower 4. Mobilize community partnerships 5. Develop policies and plans 9. Evaluate health services 10. Research	1b 2c,e 3b 4a,b,c,d 5c 6c,d 9c 10c	–Collaboration –Coalition Building –Community Organizing –Advocacy –Social Marketing –Policy Development & Enforcement	
Immunization Administration	Policy Development Assurance	3. Inform educate and empower 4. Mobilize community partnerships 6. Enforce laws and regulations 7. Link people to needed services 8. Assure competent workforce 10. Research	3b,c,d 4a,c,e 6b,c,f 7b,c 8a,b,c 10a,b,c	–Surveillance –Screening –Case Management –Health Teaching –Coalition Building –Policy Development & Enforcement	–Outreach –Referral & Follow-up –Delegated Functions –Collaboration –Community Organizing –Disease & Health Investigation
Pricing	Assurance	1. Monitor health status 5. Develop policies and plans 7. Link people to needed services	1a 5a,b,c 7a,b	–Surveillance –Consultation –Policy Development & Enforcement	

Table 2: Representative set of LHD business processes compared to public health frameworks.



CHAPTER 3.

Business Processes of Local Health Departments

Although the term “business process” has been widely used in industry to describe the way in which organizations conduct their activities and achieve specific goals and objectives, the term is not commonly used in public health.

A business process describes a set of activities and tasks that logically group together to accomplish a goal or produce something of value for the benefit of the *organization, stakeholder, or customer*. In the context of LHDs, a business process will contribute a valuable service for the benefit of the local health department, the public health community, or the target population.

Emphasizing business processes instead of specific services or programs is a key principle of public health informatics. By understanding a business process and its multiple components, including *triggers, inputs, outputs* and *objectives*, we begin to understand how an information system, that is, a tool that supports work, must perform to add value to the users. Once business processes are defined, one can define in detail the specific things the information system must do—that is, the requirements—to make the process achieve its purpose and be efficient.

The *Operational Definition of a Functional Local Health Department* and other frameworks have addressed the need to articulate the activities that a community can expect of its local public health agency. Descriptions of the business processes of local health departments are the link between the functions of an LHD and the requirements definitions for an information system.

Descriptions of the business processes of local health departments are the link between the functions of an LHD and the requirements definitions for an information system.

Thinking horizontally, not vertically

It is a natural tendency of an organization to view itself in silos, that is, organized vertically rather than horizontally. A traditional organizational chart organizes activities according to functions, e.g., Sales, Marketing, Accounting, Personnel, etc. In public health, work is frequently organized by programmatic organizational structures, e.g., Immunization, Environmental Health, Chronic Disease, etc. These programmatic structures often reflect funding streams. However, the work performed by organizations, including LHDs, flows horizontally, frequently crossing functions and even organizations many times, as it moves toward its objective. The activity of administering immunizations, for example, involves the LHD, the patient, state and federal agencies, policy boards, health care providers, and more, until ultimately, the immunization is administered to the patient. Viewing the business processes in terms of what needs to be done and how it is done, rather than in terms of the organization, department, division, etc., that does it, changes the focus from functional to process.

By analyzing its business processes, the organization and its stakeholders come to understand the commonalities of what they do *across* all programs. For example, the business process of Immunization Administration (immunization program) shares many of the same sets of tasks as Nutrition Education and Referral (WIC program). Both programs/services include scheduling, consultation, and referral activities.

In identifying common tasks across the organization, an LHD may become aware of inefficiencies in work such as unnecessary human resources or materials, or duplication of efforts. There is also an opportunity for an LHD to pinpoint areas in which shared resources or re-organized work processes will better support organizational and cost objectives. For example, an LHD may choose to centralize the scheduling function for all operations or purchase a single scheduling system that can be shared by all LHD departments or programs.

Defining a business process

The first step in understanding the business processes of LHDs is to understand the definition of a business process and how the work of LHDs can be modeled within that context. To date, there is not a universal definition for business processes, but instead myriad explanations from various sources—including education, industry, government, science, and finance—of what comprises a business process.

In comparing many of the definitions, it becomes apparent that there are some common *components* that, when considered together, can be used to characterize a business process in any context. At the very minimum, a business process will have all of the following components:

- Entities
- Transactions
- Goal
- Objective
- Business Rules
- Trigger
- Task Set
- Input(s)
- Output(s)
- Outcome(s)

Definitions and examples for each business process component are found in the Glossary and in Table 3.

COMPONENT	DEFINITION	EXAMPLES AND NOTES
ENTITY	A person or a group of people who performs one or more tasks involved in a process. The entities are the participants in the process. Entities are represented by circles in context diagrams.	Entities may be described in terms of agencies, organizations or groups (e.g., CDC, Policy Board)
TRANSACTIONS	Information exchanges between entities. May also be the exchange of goods (e.g., a vaccine or payment) or services (e.g., an inspection) between two entities. Transactions are represented by arrows in context diagrams.	Directional arrows indicate the flow of the transaction.
GOAL	The major health goal that the business process supports. The goal is the end state to be achieved by the work of the health agency and should be defined in terms of the benefits provided to the community/population or individual/client.	Example: For the Immunization Administration business process, individual protection and population protection from vaccine preventable disease are the health goals.
OBJECTIVE	A concrete statement describing what the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and understand how the process is performing towards achieving the specific objective. A well-worded objective will be SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time-bound).	Objectives often begin with action verbs such as increase, reduce, improve, achieve, etc. Example: For the Immunization Administration business process, the objective is to keep (achieve) each child/person up-to-date with the ACIP recommended schedule. The objective may be more specific to include a percentage of the population and a date by which the objective is achieved.
BUSINESS RULES	A set of statements that define or constrain some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior of the health agency (business).	The logic used to make decisions during the business process. This can be adherence to certain policies and procedures. Example: For the Immunization Administration business process, the business rules come from the ACIP recommended schedule.
TRIGGER	Event, action, or state that initiates the first course of action in a business process. A trigger may also be an input, but not necessarily so.	Examples: A health alert as a result of surveillance activities; a customer request for WIC services; a policy regulating environmental conditions.
TASK SET	The set of tasks required to fully define the business process.	Example: Performing client intake; preparing inventory; administering vaccines; educating clients represent a few tasks in the Immunization Administration task set.
INPUT(S)	Information received by the business process from external sources. Inputs are not generated within the process.	We are interested in understanding the inputs to a process in order to define the right interfaces for information exchange. Example: For the Immunization Administration business process, the data from an immunization registry detailing a child's immunization history comprise an input that provides information used within the Immunization Administration business process. Therefore, one needs to understand the registry linkage to define requirements for the Immunization Administration business process and any systems that support this process.
OUTPUT(S)	Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.	We are interested in understanding the outputs of the process for the same reason we want to understand inputs—it helps us to define our interface requirements. Example: For the Immunization Administration business process, the output of this process is a standard dataset describing the vaccine administered, recipient, etc.
OUTCOME	The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, decrease in incidents, etc.). Please note that an outcome can be, but is not necessarily, an output of the process.	Example: For the Immunization Administration process, the outcome(s) can be described as the successful administration of vaccine and the schedule for the next appointment. These transactions indicate the objective has been met, but are not outputs.

Table 3: Definitions and examples of business process components.

The question of granularity

In their discussions to define the business processes of LHDs, the LHD work group struggled with the question of “granularity,” that is, how broadly—or narrowly—should a “process” be described?

Although it is appropriate in some instances to confine the discussion of business processes within one functional area (e.g., accounting, human resources), business processes may span across or within multiple business units—where a business unit refers to a department, division, branch, team, or organization. Example: the order-fulfillment business process for a fast food restaurant encompasses activities within the areas of food preparation, beverage dispensing, and cashiering. In a health-related example, the process of providing a patient with x-ray services consists of activities in the radiology, admitting, scheduling, and billing departments of a hospital. Business processes may also be a part of larger encompassing processes. Example: using the fast food example from earlier, the process of order fulfillment includes a food preparation process, a drink dispensing process, and a billing process. Therefore, there are various levels of granularity through which business processes may be viewed.

The question of granularity poses a significant challenge when working with a group to collaboratively agree upon the business processes that globally define the work of LHDs. Should the LHD business processes be expressed in broad terms encompassing many activities and participants such as “environmental safety inspections”? Or is it more useful to identify specific program-oriented processes, such as the activities that are carried out during on-site sewage disposal approval or restaurant inspection? Broad definitions of LHD business processes lend the advantage of being very adaptable for many different LHDs, and possibly other public health agencies, i.e., state health agencies. However, the more tightly defined business processes give a more accurate sense of the actual work that is done by LHDs and where process improvements or information systems could be useful.

Tasks or processes?

One task facing the LHD work group members following their orientation to business process analysis was to build a master list of public health business processes. The work group’s objective was to develop an inclusive list of business processes such that the work that takes place in any LHD could be found on the list. Their plan was to develop the master list between meeting sessions by collecting input from their staffs. Once compiled, the work group members planned to use the list to guide themselves through a comprehensive analysis of local public health business processes.

The work group identified 119 LHD business processes, and, as they soon realized, the business processes reflected a range of granularity. Some work group members clustered several related activities under general categories of work, while others defined very specific activities that are carried out in their organizations. Furthermore, it was obvious that work group members disagreed as to whether some activities should be classified as tasks or processes. While tasks are activities that take place within a process, a task will not have all of the components that characterize a business process. For example, an LHD will not be able to describe a single measurable health-related objective for scheduling appointments. Rather, the scheduling objectives will differ depending upon the process that is supported by the activity.

The Business Process Matrix

With a limited amount of time to work together, the LHD work group members needed a method to ensure that they employed a consistent approach to defining LHD business processes. The Institute developed a matrix of the business processes that proved to be a valuable tool to enable normalizing the granularity of the LHD business processes on the master list.

The Business Process Matrix (Table 4, pp. 30-31) depicts the components that characterize a business process—the goals, objectives, triggers, inputs/outputs, business rules, and outcomes (horizontal axis), and a representative set of LHD business processes (vertical axis). Using the matrix to define the components, work group members were able to determine if a given activity had the appropriate structure to be classified as a business process.

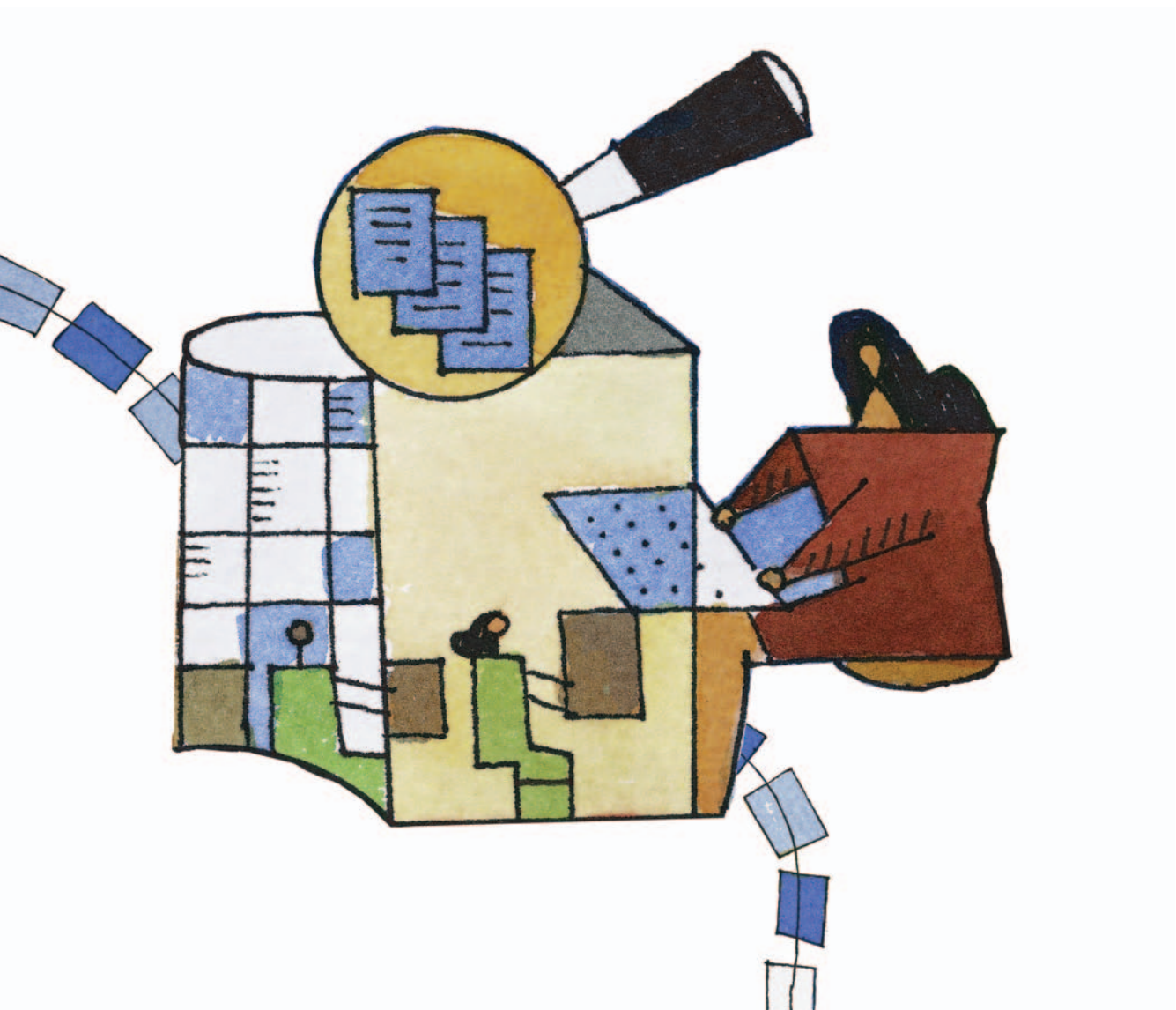
In addition to helping the LHD work group eliminate tasks that were mistakenly identified on the master list as business processes, the Business Process Matrix enabled work group members to recognize when two or more processes shared enough characteristics to be collapsed into one LHD business process. For example, a draft analysis of the On-site Sewage Disposal and Restaurant Inspection business processes led the work group to define a broader category, Environmental Inspections, which describes those and other similar activities. Conversely, using the Business Process matrix helped work group members isolate some business processes from larger more encompassing business processes. For example, the Community Health Assessment business process initially included tasks associated with planning functions that used the outputs of the assessment function. After analysis and discussion, the work group members unanimously decided that the planning function should be separated from the Community Health Assessment business process with the agreement that another business process from the list would be modified to include the planning function.

BUSINESS PROCESS	GOAL	OBJECTIVE	BUSINESS RULES	TRIGGER(S)
	The major health goal that the business process supports. The goal is the end state to be achieved by the work of the health agency and should be defined in terms of the benefits provided to the community/population or individual/client.	A concrete statement describing what the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and quantify performance measures. A well-worded objective will be SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time-bound).	A set of criteria that defines or constrains some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior of the health agency (business).	Event, action, or state that initiates the first course of action in a business process. A trigger may also be an input, but not necessarily so.
BILLING AND ACCOUNTS RECEIVABLE	Assurance that the fiscal process supports the strategic goals of public health and complies with all legal and policy requirements.	Process accounts receivable in a timely, efficient and accurate manner to assure cash flow, compliance with legal requirements, and alignment with budgeted public health activities.	GAAP; OMB Circ A-133 (Single Audit); U.S. Government Auditing Standards; City/county charter/law; State law.	Services provided to customer.
COMMUNICABLE DISEASE AND CLINICAL INTERVENTION & TREATMENT	Early identification, treatment and resolution of health condition; Promotion and protection of population's health.	Complete accurate and timely screening, diagnostic and treatment processes; Assure individual compliance with and completion of recommended course of treatment.	Public and private medical providers; State and local health departments; Diagnostic labs and other entities; Hospitals/acute care system; Standardized and best practice communicable disease control.	Client presents with symptoms or risk factors; Periodicity schedule for screening; Referral for services; Alert (population risk); Lab report; Surveillance reports; Clinical diagnosis.
COMMUNITY HEALTH ASSESSMENT	Assessment of the health status and needs of the community.	Compile and analyze data as requested by stakeholders.	Statistical methods; Data collection protocols; Reporting guidelines.	Public Health requirements to track core set of indicators; Identification of data gaps by stakeholders; Continued health surveillance; Health emergency identified by Public Health staff or others.
ENVIRONMENTAL & SAFETY INSPECTIONS	Prevention of disease or injury caused by environmental exposure (air, water, food, waste).	Inspect proposed or existing facilities to find and prevent potential sources of disease or injury.	Daycare, restaurant policies, ordinances; Proposals are responded to rather than sought. Complaints are responded to rather than solicited.	Proposal for land use including new facility; Complaints about current land use or facility; Scheduled routine inspection; Incident report.
FIELD NURSING	Improvement in the health and psychosocial wellbeing of at-risk families.	90% of all families will achieve Healthy People 2010 goals for healthy pregnancies and child development.	Evidence-based interventions; Standardized assessment, data collection, and evaluation; Healthy People 2010 Goals; State laws for child welfare and protection; Health insurance eligibility guidelines; Birth to 3 early intervention standards.	Referrals.
GRANTEE ADMINISTRATION	Accurate management of financial resources, information and effective use of resources to achieve public health goals.	Assure grant compliance following statements of work and contract requirements. Coordinate grant management to minimize the number of grants limited to one focus area and to maximize those having the broadest focus.	Grantor restrictions and allowances; Local government restrictions and policies on use of grant funding.	Signed/approved contract.
GRANTOR & CONTRACTEE ADMINISTRATION	Enhanced population health through new resource acquisition	Assure grant compliance following statements of work and contract requirements; Engage the service community to provide resources and services; Coordinate grant management in order to minimize the number of grants limited to one focus area and to maximize those having the broadest focus.	Grantor restrictions and allowances; Local government restrictions and policies on use of grant funding.	Announcement of funding for services of interest to an agency.
IMMUNIZATION ADMINISTRATION	Reduction and elimination of vaccine-preventable diseases.	Maintain x% minimum compliance with community each year with ACIP immunization recommendations.	VFC & PPV regulations; ACIP/vaccine mgmt protocols; Immunization grant requirements.	Request for service.
PRICING	Fees for services that allow extension of public fund sources and assurance of service delivery resources within community public health standards.	Establish fees for services that meet all legal requirements and include schedules that allow appropriate access to services to meet public health needs of the community.	Board directives; policy; City/county ordinances and regulations; Medicare/Medicaid rate schedules; Usual & customary fee standards; U.S. poverty level.	Board request; Need to set fee schedule.

Table 4: Business Process Matrix.

The Business Process Matrix depicts the components that characterize a business process and a representative set of LHD business processes from the master list that was analyzed using the matrix as a tool.

TASK SET	INPUTS	OUTPUTS	(MEASURABLE) OUTCOMES
The set of activities that are carried out in a business process.	Information received by the business process from external sources. Inputs are not generated within the process.	Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.	The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, decrease in incidents, etc.). Please note that an outcome can be, but is not necessarily, an output of the process.
Document service; Credit Payment; Bill appropriate payer; Document A/R by date; Secondary billing; Final notice; Document payments, write-offs and reports.	Time and activity schedules; Payments received.	Invoices; Reports.	Payments received; Timeliness of payments received.
Perform assessment; Provide health counseling; Provide information & referrals; Perform client intake (history, determine need, obtain consent); Prepare inventory (assemble, store medication); Communicate risks as needed; Administer treatment/medication.	Screening and testing reports; Referral information; Medical orders; Insurance reports; Audit claims; Screening testing & disease investigations.	Screening, testing and investigation reports to MDs and state health department; Insurance claims and documentation; Case management reports; Referral to community agencies; Compliance report.	Timely completion of screening, diagnostic and treatment processes; Control or resolution of health condition; Inventory maintained and updated; Tracking complete for funding streams.
Identify appropriate data sets; Develop data sharing agreements; Design and implement surveillance tools; Analyze data; Report information.	New data sources; Survey instruments; Human subject guidelines.	Dissemination of useful health information.	Usable information for planning.
Assess risk and inspecting criteria; Establish minimum and maximum requirements; Design inspection plan; Perform inspections; Monitor results; Report findings; Provide permit decision.	Inspection schedule; Reports; Application proposal; Site characteristics information (location, soil type, other land uses, etc.); Application proposal and details (type of construction, use, etc.).	Inspection findings; Approval or denial of application; Corrective action; Follow-up requirements.	Absence of environmental risk as a result of installation.
Intake/Referral information; Scheduling; Assessment; Family engagement; Health education and counseling; Case Management; Evaluation of service outcomes; Documentation; Billing; Advocacy .	Referral information.	Number of visits; Number of clients; Reports to payers; Follow-up to referring entity; Periodic surveillance reports to Policy Board; Referral to social services and community resources.	Birth outcomes (low incidence of low birth rate); Pregnancy outcomes (reduced smoking); Child growth and development outcomes; Child maltreatment prevention (low rates of confirmed child maltreatment); Breastfeeding (initiation and duration); Mother-infant attachment; Family planning (birth spacing).
Bill per grant contract allowance; document billing date and amount; create A/R; credit A/R; Generate reports; Compliance audits.	Grantor restrictions and allowance expenditures; Audit requirements.	Project reports.	Meeting contract/grant goal; Compliance and/or financial audit results.
Pay per deliverable and report completion or grant policy; Evaluate grantee compliance; Track compliance as vendor or subcontractor with appropriate oversight; Establish reporting process for grantees; Establish payment process to grantees.	Statement of work and contract requirements; Payment for deliverables.	Contract deliverables; Evaluated and approved reports.	Meeting contract/grant goal; Compliance and/or financial audit results.
Perform client intake (history, determine need, obtain consent); Prepare Inventory (assemble, store vaccines); Educate client; Administer vaccine; Document administration; Schedule next visit; Investigate potential adverse events; Collect appropriate fees.	Recommended vaccines; Immunization history; Registration forms; Updated registration; Vaccine.	Client ID/tracking number and cross-index to Immunization Information System; Printed updated immunization record; Vaccine administered with correct technique; Updated inventory; Adverse event reports (employee or client); Schedule for client's next appointment; Immunization education information (to client).	Vaccine productivity targets met; Immunization protocol targets for registered clients met; Appropriate fees collected; Inventory maintained and updated; Tracking complete for funding streams; Risk management data distributed appropriately.
Pricing; Monitor costs; Monitor salaries, overhead; Develop pricing per service; Set service price list; Financial need assessment; Income-based fee schedules.	Policy-driven cost components; Algorithms or calculation masters.	Fee schedules; Price list.	Utilized schedules.



CHAPTER 4.

Requirements Development— From think to rethink to describe

Facilitated by a business analyst, the work group was guided through the Requirements Development Methodology to think through how LHDs currently do work, explore how some of the public health business processes at their facilities might be made more effective or more efficient, and describe how an information system might be designed to support the work that is done.

Business
Process
Analysis

think

*How do we do
our work now?*

- Define goals and objectives
- Model context of work
- Identify business rules
- Describe tasks and workflow
- Identify common task sets

Think: Business Process Analysis

How do we do our work now?

Following an orientation to business process analysis, the LHD work group demonstrated their comprehension of business process analysis concepts by actively using the graphical tools of business process analysis to depict newly defined LHD business processes. *Context diagramming* and *task flow diagramming* allowed the work group members to view the context—environment and workflow—for various LHD business processes.

Context diagrams

Context diagrams are used to illustrate the participants as well as the flow of information within the work environment. Participants, referred to as *entities*, are represented as circles. Information flows or *transactions* are represented by lines between entities. The lines have arrows that indicate the direction of the transaction as information is exchanged between entities.

The context diagram provides the framework for subsequent requirements development activities by reflecting relationships and boundaries that exist between individuals and groups within a work environment. The work group was introduced to context analysis through an exercise to draw the context diagram that illustrates the participants and information exchanges that occur during the order fulfillment business process at Freddie’s Flippers, a hypothetical fast food restaurant. (See Figure 3.)

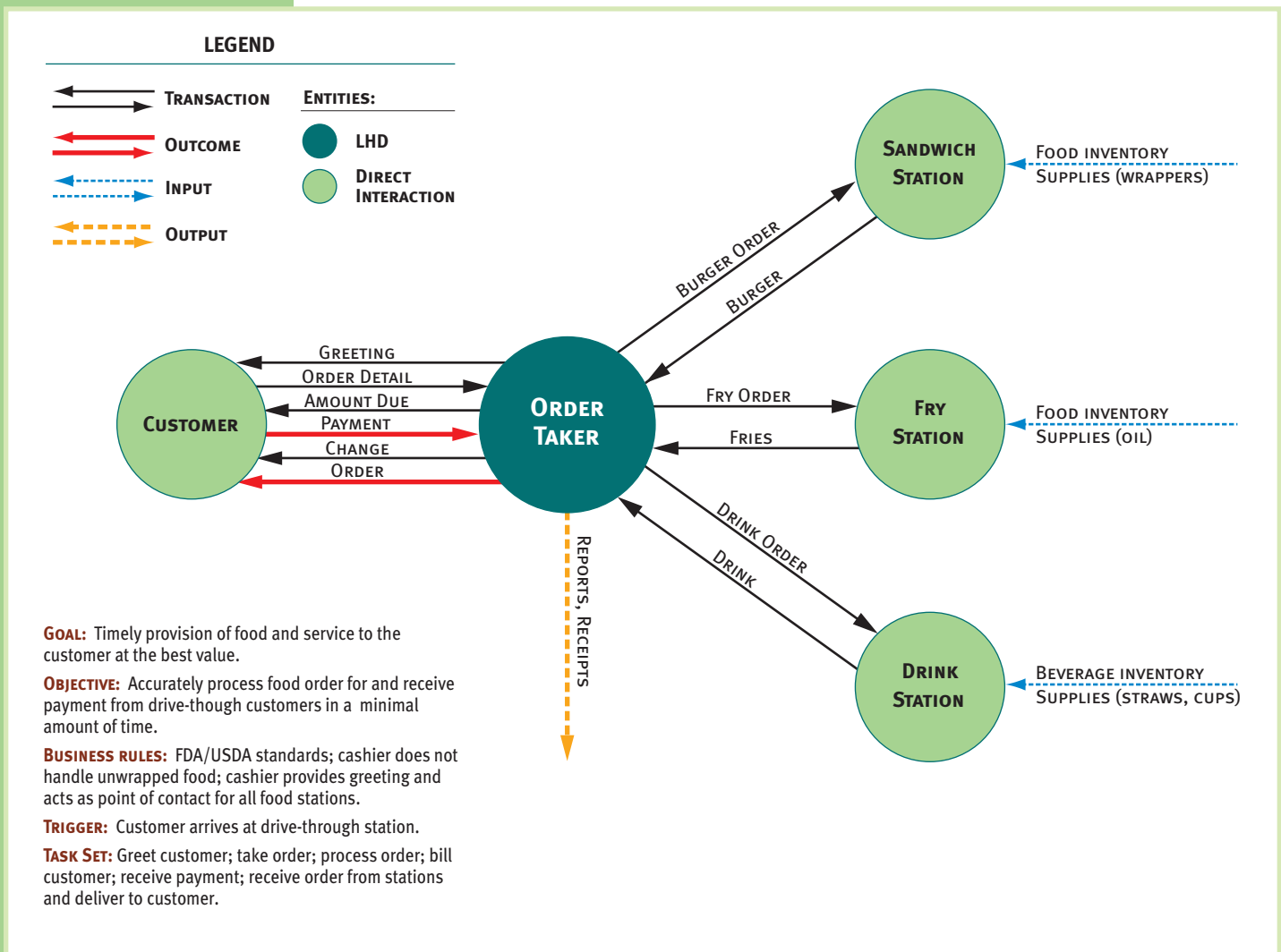


Figure 3: Context diagram for restaurant order fulfillment business process

A context diagram for the restaurant order fulfillment business process depicting all the components of a business process.

By examining the context diagram for Freddie’s Flippers, an observer can readily see the individuals and departments that participate in the order taking and fulfillment process, as well as the types of exchanges—such as greetings, orders, billing, and payment—that take place between the entities.

The rules of the business

The activities and exchanges that occur within the context diagram do not happen randomly; rather, they are governed by the goals, objectives, and business rules for the business process.

For example, the *goal* for Freddie’s Flippers can be described as the assurance that the customer will receive a quality food product at the best value. Everything that happens within Freddie’s establishment is to support the goal of delivering quality and value to the customer.

The *objective* for the business process describes what outcome should occur that eventually supports the goal. In this case, the objective of Freddie’s order fulfillment process is to deliver a completed order to the customer, probably within a certain time constraint. Defining an objective lets everyone understand when the business process has been completed.

The *business rules* that guide the exchanges within Freddie’s order fulfillment process include guidelines that must be followed for food safety, as well as disposal methods that follow environmental safety policy. There are many other rules that are considered as business is transacted, including company policies that apply, such as Freddie’s desire that each customer receive a warm greeting prior to giving their order.

Over the course of the LHD business process analysis project, the LHD work group members applied their knowledge of context diagramming to describe nine LHD business processes. (Context diagrams and narratives explaining the diagrams for the nine business processes are included in Appendix B.) To define the context for each process, the work group members identified the key individuals and groups in their various organizational settings that would be involved in this process. Facilitated by a business analyst, the work group also identified the relationships among the participants and the types of information exchanges that typically take place during each business process. While it was understood that each LHD might define the context slightly differently, based on their unique responsibilities and organizational structures, the members were able to discover and agree on the common elements across and within their environments that defined the basic work for each business process. Figure 4 (p. 36) is a context diagram, developed by the work group, representing the typical work environment for administering immunizations.

While context diagrams show the relationships between individuals and groups within an environment, they do not reflect the activities that take place in order or sequence of actions. Another graphical tool, the task flow diagram, is used to show sequence of activities.

“Business process analysis is about getting your house in order. We have to understand our own processes if we expect to inter-operate with health care.”

– Bill Stephens,
Tarrant County, TX

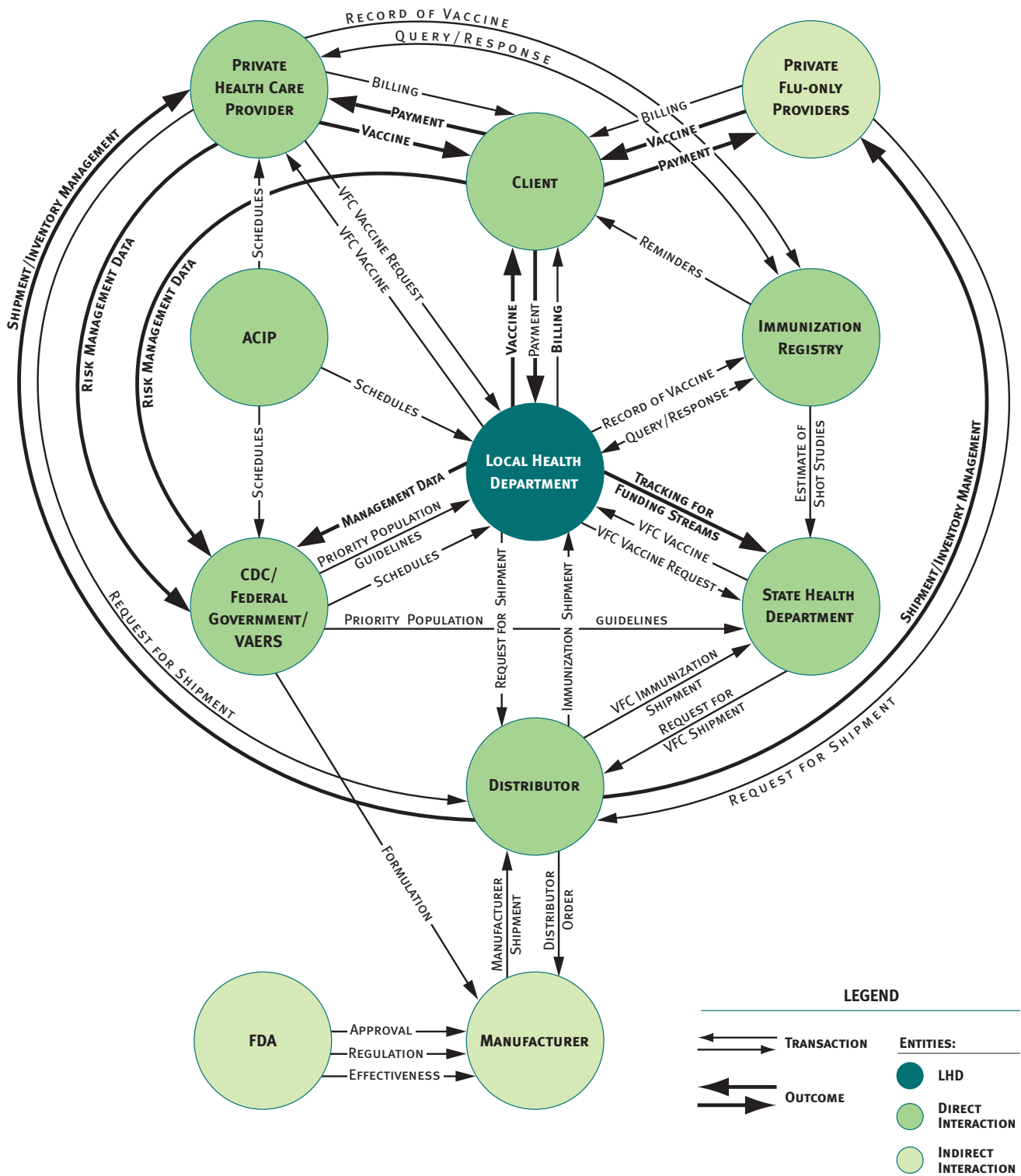


Figure 4: Context diagram for immunization administration business process

Tasks and workflow

The activities that take place in a business process are referred to collectively as the task set for that process. The *task set* comprises many tasks and is represented graphically by one or more *task flow diagrams*. Task flow diagrams proceed from, and are more detailed than, context diagrams. Key tasks—those that are most critical to the business process—are described in more detail in task flow diagrams. Mapping of key tasks gives more detail on how resources are used within a business process.

Task flow diagrams look like standard flowcharts. Therefore, they have the following qualities:

- There is an input, or starting point.
- There are one or more activities or tasks performed on the input.
- There is an output.
- They are read from left to right or top to bottom. Task flow diagrams are networks with a single direction of flow, not tree-structured hierarchies.
- Standard flowcharting tools are used—rectangles, arrows, diamonds, etc.

Although task flows that occur sequentially may be chained together (output into input), it is likely that multiple task flow diagrams will need to be developed for a given business process to reflect the various activities that occur in parallel to one another.

Although the scope of the LHD Collaborative Business Process Analysis project did not include task flow analysis, the work group felt it would be useful to their understanding of business process analysis to observe one business process through the complete Requirements Development Methodology. The work group members created task flow diagrams for key tasks that occur in selected processes for which they had developed context diagrams, including WIC and Immunization Administration.

Figure 5 (p. 38) illustrates a task flow diagram for the major task series within the Immunization Administration business process. This diagram was created as work group members described typical activities that occur during this process. It is understood that other tasks, such as inventory management, ordering, and reporting, are also taking place within the business process and would be represented in separate task flow diagrams.

After creating the task flow diagram for Immunization Administration, there was much discussion among LHD work group members about the scheduling activities needed to set up and confirm follow-up appointments. This conversation expanded beyond immunization to include other public health business processes that also require a scheduling function, such as On-site Sewage Inspection and WIC (including both Nutrition Education and Referral). A natural next step for the group was to explore the similarities of scheduling activities within different processes. To examine the scheduling functions within those processes, the work group created the task flow diagrams for Nutrition Education and On-site Sewage Inspection with facilitation by one of the work group members.

In comparing the scheduling activities across several business processes, it was evident to LHD work group members that there were more common than unique actions occurring during various scheduling activities. For instance, each process that entailed scheduling required

“Task flow diagrams are the ‘zoom’ function in business process analysis. They show what happens within a process.”

– Valerie Britt,
Public Health
Informatics Institute

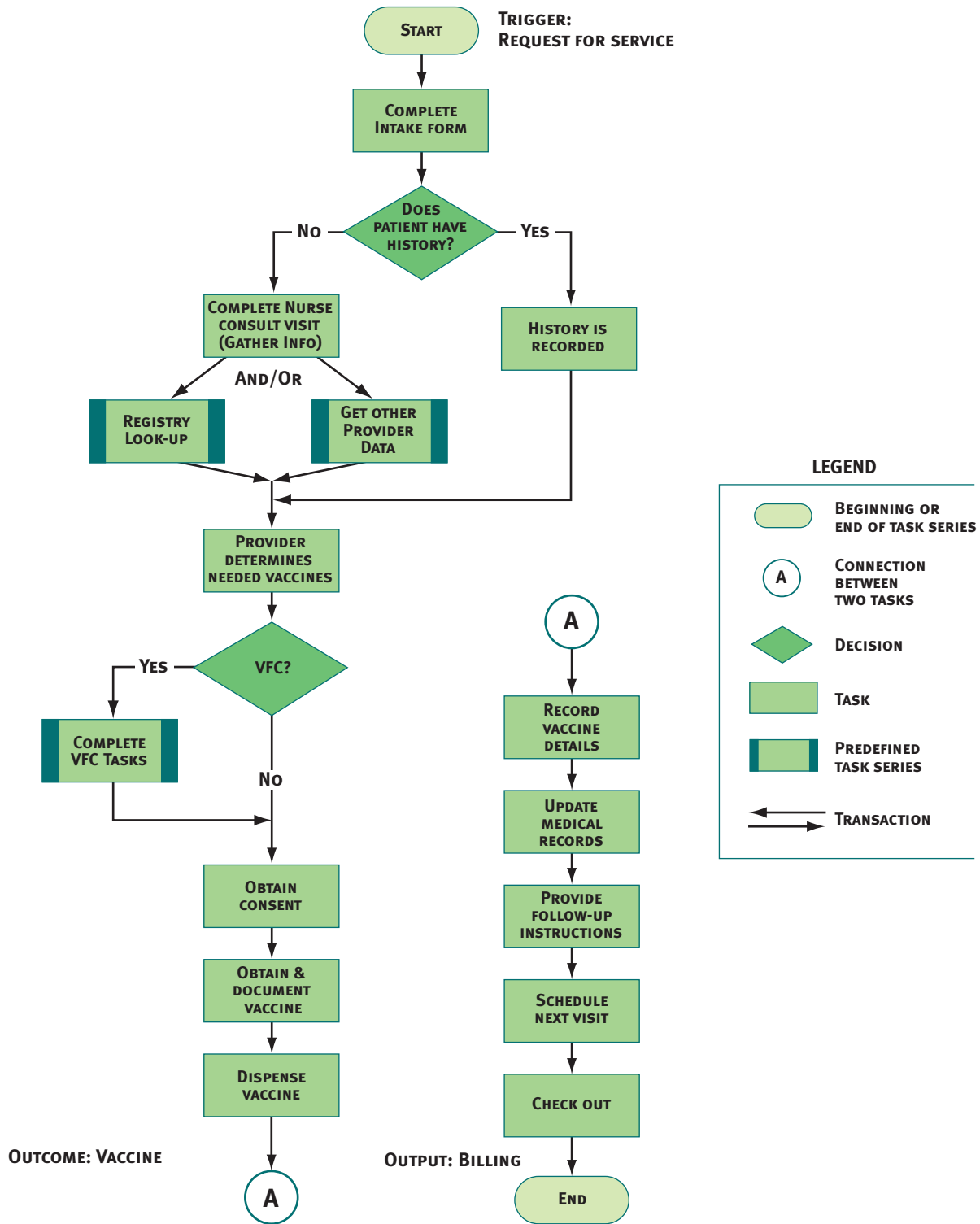


Figure 5: Immunization administration task flow diagram

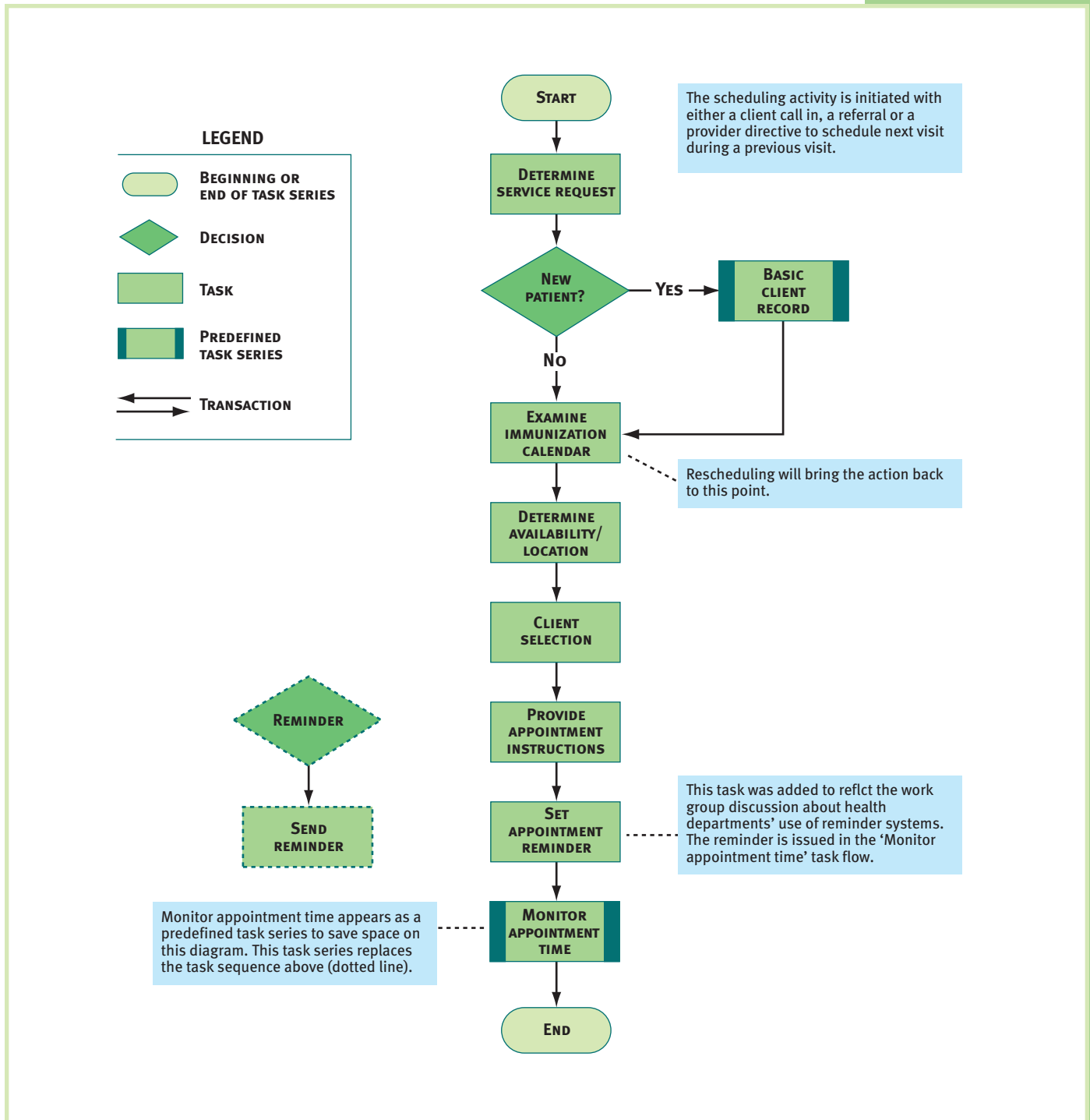


Figure 6: A generic LHD scheduling function

appointment reminders to be sent to customers, as well as monitoring of staff availability and comparison of staff and patient availability. Dialogue among work group members regarding their scheduling practices led to the development of a task flow diagram for the general management of appointment schedules (Figure 6). The generic appointment management feature can be used in myriad processes within and across multiple LHDs with minimal change.

Common task sets

A *function* is a repeatable task series or set of operations that is used in more than one instance and can be shared across multiple business processes, such as scheduling. Identifying functions, that is, isolating the sequence of repeatable and common tasks is the next step towards optimizing the business process.

It was obvious from the work group discussion that many LHDs conducted scheduling activities in the same manner. And within an LHD, it was likely that the same general scheduling function was used by various business processes and potentially performed by different staff. This revelation inspired the work group members to extend this concept to finding other functions within their organizations and to reflect on benefits that commonly result from modeling business processes:

- Discovering activities that are shared across departments or business processes
- Finding inefficient or redundant workflow
- Pinpointing activities that are resource-intensive
- Isolating activities that are candidates for redesign (e.g., in order to share resources, increase efficiency, etc.)
- Identifying activities that may be candidates for automating
- Comparing and contrasting similar activities with other work group members

Rethink: Business Process Redesign

How should we do our work?

After some LHD work group members described their approaches to scheduling, others were interested in redesigning their scheduling activities for greater efficiency. The work group also discussed the feasibility of purchasing a scheduling system that could be used by multiple departments in an LHD for several processes. For instance, a scheduling system used in clinics for immunization appointments could also be used, with slight modification, by the environmental safety division to schedule site inspection visits. These discussions stirred up a lot of energy and interest in making the existing processes better.



rethink
How should we do our work?

- Examine tasks and workflow
- Identify inefficiencies
- Identify efficiencies with repeatable processes
- Refine business processes and business rules
- Remodel context of work
- Restructure tasks and workflow

Identifying efficiencies and inefficiencies

In the final working session, in which the LHD work group followed a business process through the complete Requirements Development Methodology, they looked more closely at some of the benefits of task flow analysis. For instance, in the study of a task set, a business analyst, with input from the participants, can assess what work is being performed and which activities can be added to or changed within the current business process to improve performance or increase value of the final product. Each task within a task

“We cannot get to ‘rethink’ until we have done task flow diagramming of the current way work is done.”

– Valerie Britt,
Public Health
Informatics Institute

set may be evaluated to determine how removing or changing it will impact the final outcome of the business process. When a change to a task proportionately impacts the quality of the process for the stakeholder, the task is known as a *value-added task*. A sequence of value-added tasks makes up the *value chain* for a workflow. Ideally, the goal for quality improvement is to maximize the percentage of tasks that comprise the value chain. That is one way to improve the quality of a business process.

Conversely, tasks that do not add value may be redesigned or removed to improve the efficiency of the workflow. For example, the task flow diagrams for an accounts receivable business process revealed that an activity in which a worker checked the totals of a ledger was redundant after paper ledgers were replaced with electronic spreadsheets. The spreadsheets contained the automatic calculation function that was necessary to check totals, but the manual calculation task was never deleted from the workflow. Removing the manual calculation task decreased the time for the work to be completed and also freed up a labor resource for other critical tasks. From this illustration, several work group members concluded that it would benefit their organizations if they were to look at certain business processes with their staff to evaluate their task sets for efficiency.

One member noted that she saw the task flow analysis as a way to help organize procedures for new employees. She stated that her ability to understand and apply business process analysis within her health agency helped in sorting out staffing roles during an unexpected reorganization.

“Business process analysis enables us to question why we do work that way, and how it might be done more effectively and more efficiently.”

– Valerie Britt,
Public Health
Informatics Institute

Describe: Requirements definitions

How can an information system support our work?

Another benefit to performing task flow analysis is the capability to define the specific tasks that need to be performed by an information system. The statements that describe the needed functionality of an information system are referred to collectively as the *requirements* or the *requirements definitions*. Requirements definitions answer the question: “How would you see information systems supporting Task X?”



describe *How can an information system support our work?*

- Define specific tasks to be performed for optimized business processes
- Describe the implementation of business rules
- Describe in words and graphics how an information system must be structured
- Determine scope of next phase of activities

In addition to defining specific tasks to be performed by an information system, requirements provide a visual description of what the information system needs to capture and display. Requirements are also specified to ensure that activities within the business process remain within physical and operational boundaries.

The work group discussed the types of functionality that would be needed to support public health staff in sending appointment reminders to patients. This requirement takes into account that, although the system is purchased to support operations in one LHD, each program area using the system might have different constraints for their scheduling needs. For example, an LHD that wants a scheduling system to support both immunization activities and on-site inspections might specify in its requirements the performance described in Figure 7 (p. 42).

“We need requirements that work for more than one health department. Vendors are looking to work with a greater universe.”

– Mark Bertler,
Michigan
Association for
Local Public Health

SYSTEM REQUIREMENTS

1.1	PROVIDE A COMPREHENSIVE AND INTEGRATED VIEW OF THE PATIENT/STAFF SCHEDULES.
<p>The information relating to all patient and staff schedules must be accessible to LHD administration and public health staff on a need-to-know basis so that schedules may be viewed from a patient, staff, or department perspective.</p>	

FUNCTIONAL REQUIREMENTS

2.1	ALLOW VIEWING AND REVISION BY AUTHORIZED PERSONNEL.
<p>System should enable the patient and staff schedules to be viewed by individuals with responsibilities to assist patients as well as those responsible for system actions (such as IT personnel). Revisions to schedules shall be granted to authorized users, with original schedule information preserved. A record shall be kept on who revised schedules and when.</p>	

2.5	PROVIDE CROSS-CHECKING OF SCHEDULES.
<p>System should be able to provide constraints such that staff hours are not over-allocated. The system should be capable of cross-checking availability on all staff covering multiple coded departments.</p>	

2.7	PROVIDE A USER-FRIENDLY METHOD TO ADJUST CUSTOMIZED FIELDS.
<p>The system should be a common interface that can be customized to make it more appropriate to a program or department.</p> <p>The scheduling parameters should be flexible. View of schedule information should be configured for appropriate departmental staff. Each individual should be able to configure the interface, within limits, to import, view, or update information to their needs.</p> <p>The system should, where applicable, assist the users in updating scheduling information by presenting the users with suitable prompts.</p> <p>The system should, where applicable, permit established limits on certain fields.</p>	

Figure 7: Requirements Definitions for a Generic LHD Scheduling System

This figure includes sample statements that might describe the required functionality of a generic scheduling system that can be used by several LHDs or multiple departments within one LHD.

Logical Design

The next step after defining requirements is to provide a logical design for the system that describes textually and graphically how an information system must be structured to support the requirements. A logical design diagram, which may be depicted in many ways, is useful to convey the activities of the process and where the information system is expected to support the workflow.

Four of the top-level functions of the scheduling system are labeled and shown as modules in Figure 8a (p. 44). The title of each module describes a function of the information system. Each module shown in this system is created to support one or more of the requirements in Figure 7. For example, Module 1.0, Check and Restrict Access, is a system function that supports Requirement 2.1, which requires that the system provide certain restrictions based on user authorization. Similarly, Module 3.0, Update & Maintain Appointment Schedules, is in place to support at least two requirements, including Requirement 1.1, Provide and Integrated View of Patient and Staff Schedules, and Requirement 2.1, Allow Viewing and Revision by Authorized Personnel.

In Figure 8b (p. 45), the relationship between the modules, the users of the system, and the database appear in a layout that shows how the information moves between the system, the database, and the users. This is an example of a logical design for the generic LHD scheduling information system. The diagram illustrates the logical layout and functions and shows how the information system fits into the workflow to perform certain actions as described by the requirements definition.

Although Figure 8b appears to be very similar to the context diagrams shown earlier, it is important to note that context diagrams show participants and information exchanges without considering information systems. To that end, requirements are defined for information systems that support the needs of the business. Conversely, if the information systems were a part of the context diagrams, there would be a tendency to design or redesign business process tasks around the capacity and limitations of the information system.

The logical design only changes if the LHD changes the way it does business. This is because the logical design is built around the requirements definition, which is based upon the rules and objectives of the business processes supported by the information system. But there may be many possible physical implementations derived from a single logical layout. The ability to choose independent physical designs makes it possible for different LHDs or different departments within one LHD to use the same system to support their unique needs.

A simple analogy is the music written for a song. The musical score, which provides notations that designate the timing of the song, the melody, the key, and the cadence, is the logical design of the song. If any feature of the musical score changes, the song will sound differently. However, the same song may be performed using a soloist, a piano, or a flute, an orchestra, or any combination of instruments. The various instruments and voice are all possible physical implementations for one logical design. By using the same music, different performers may practice separately using the same music, yet come together harmoniously. Similarly, different departments or organizations have the freedom to select separate physical designs based on one logical design. Yet the systems will be able to interconnect because

“Business processes have a long shelf life. Technologies, however, may change. If we understand the business processes, we can apply the latest technologies.”

– Pete Kitch

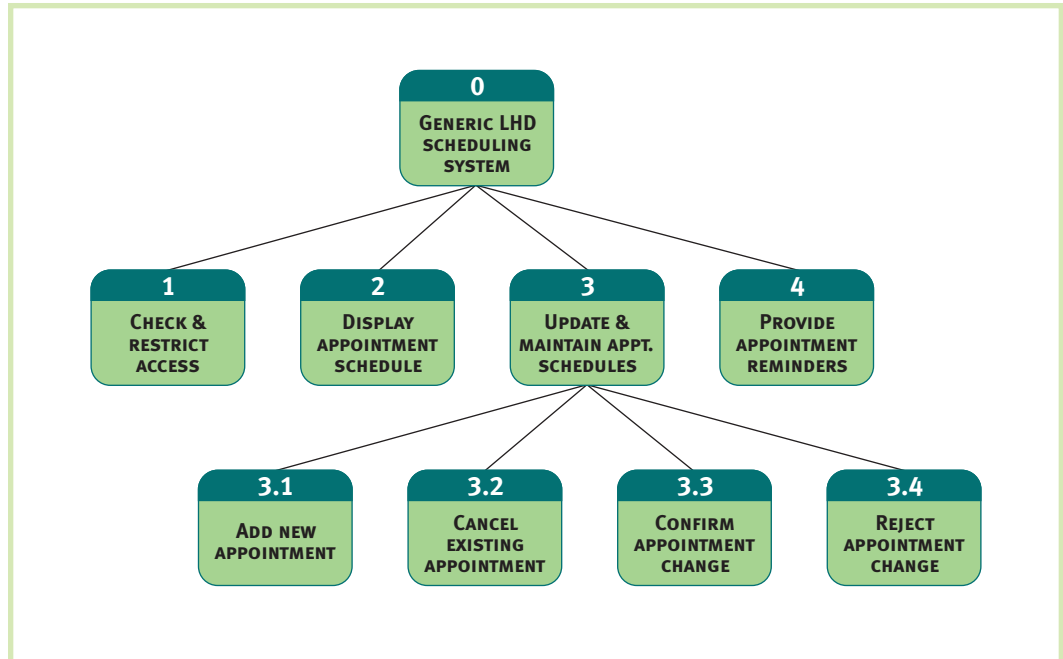


Figure 8a: *Generic LHD scheduling system functions*

they are governed by the same conventions. Also, when technology becomes obsolete, the design for the replacement system—the logical—is readily available.

The physical implementation of a design will be highly dependent on the type of technology that is available or affordable. For example, one physical implementation of the generic scheduling system is a computer network with applications to run the modules and access the databases. The computer system will store, retrieve, and display all of the scheduling information to suit the users' requests. Users can use workstations with screens to view existing appointments. Those with access will have the ability to login and add or cancel appointments.

The previous example is what comes to mind when an information system is described. However, it is important to note that another information system implementation might involve the use of appointment books, pens, and desk calendars. The logical design, hence the requirements, are still adhered to. For instance, the requirement to have integrated views of the schedule is met by having appointments recorded in the provider's appointment book, as well as on a shared department wall calendar. The abilities to cancel or add appointments and to provide reminders are not performed in an automated manner in this system, but will be implemented by designating duties and work tasks to individuals. In other words, in the non-automated information system, the functions that are performed by the automated system are merely delegated to individuals and stored information is paper-based instead of electronic.

Although taking a single business process from context diagram through logical design required a day of discussion, the LHD work group found the exercise completed their understanding of the Requirements Development Methodology. It validated that business process analysis not only provided the basis for process improvement, but also requirements definition and logical design of information systems to support public health activities.

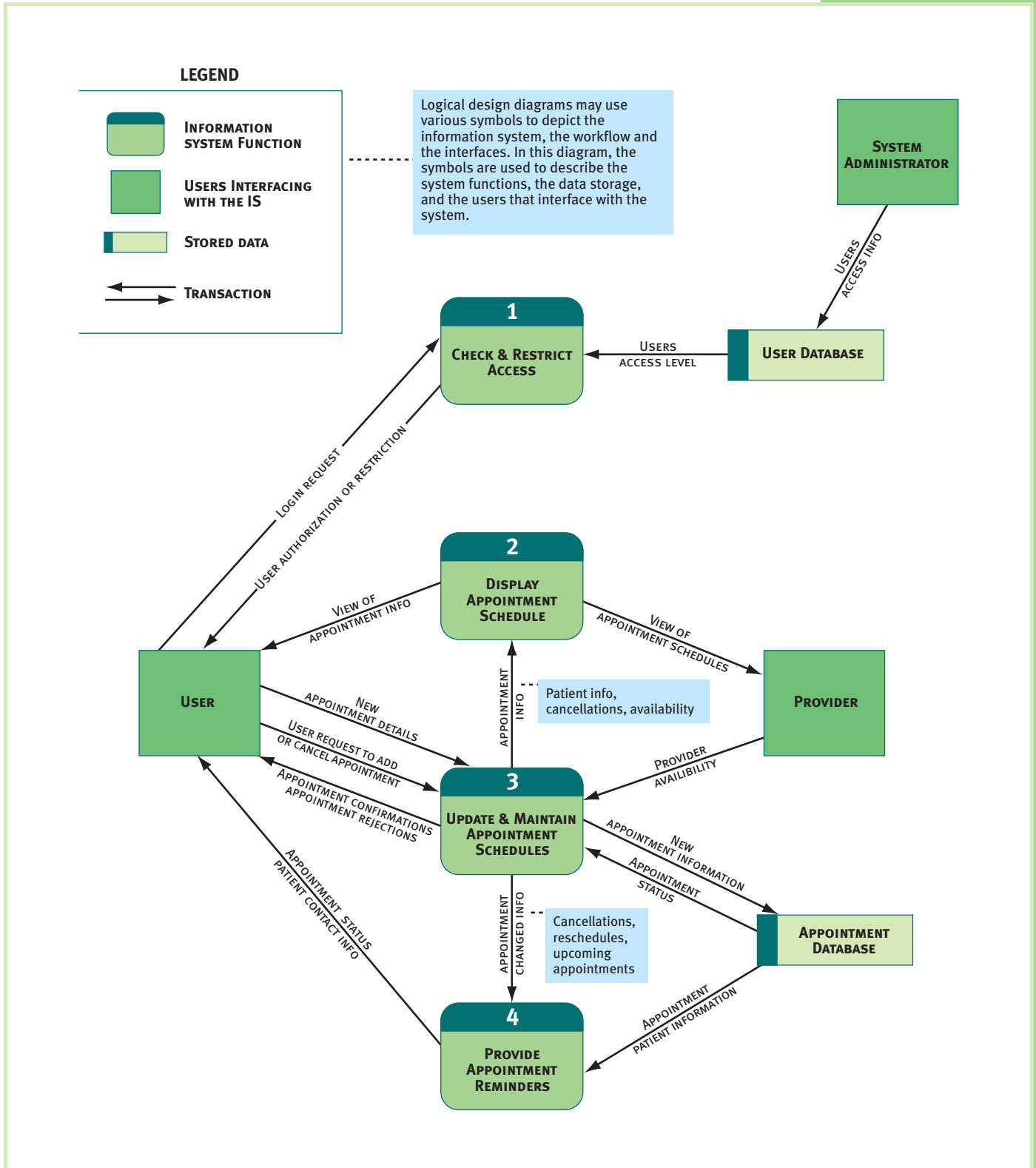
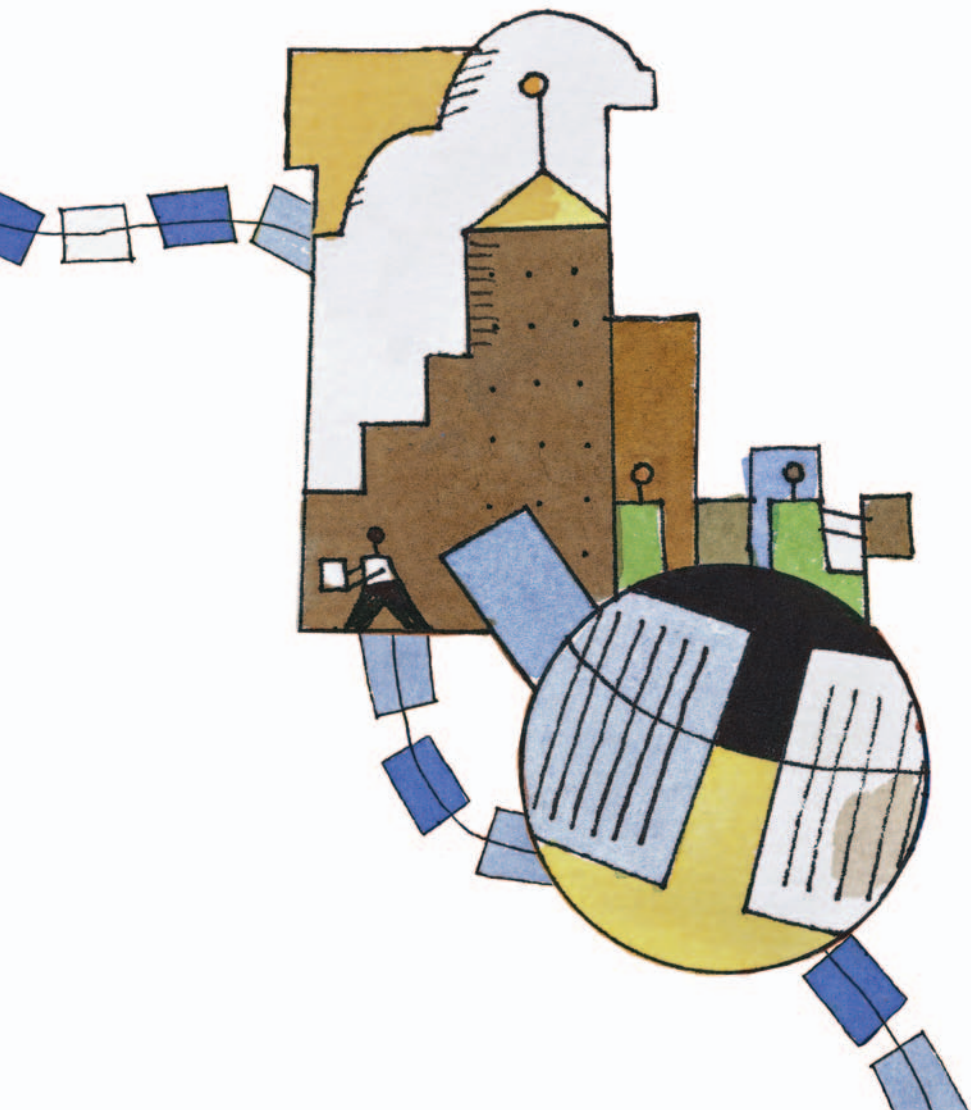


Figure 8b: Logical design of a generic scheduling information system

This diagram illustrates the functions and logical layout for a generic LHD scheduling system. The diagram shows how the functions of the information system fit into the workflow to interface with the users and perform certain actions as described by a requirements definition.



Conclusion

Public health agencies are expected to effectively use sophisticated information technologies to detect, assess, and respond to public health challenges. But, even after significant sums have been spent on preparedness planning and systems building, most public health agencies lack the ability to gather, analyze, and use information needed for surveillance and coordinated response for large-scale health problems, ranging from chronic disease to infectious disease outbreaks to terrorist threats.

Public health knows it must shed the legacy of categorical program thinking and single purpose information systems and move to systems that support a multitude of work processes and cross organizational boundaries (i.e., departments within a health department or functions within a health department) and sectors (i.e., local to state to federal or health departments to health care providers). Collaborative requirements development enables public health agencies to reach agreement on a common vocabulary and definitions to describe their business processes. It provides opportunities for agencies to review each others' approaches for carrying out core business activities and redesign those processes to improve quality and performance, as well as interoperability. Broad adoption and endorsement of those processes will advance public health's ability to define information system requirements that meet the needs of many states and communities.

The collaboration to define local health department business processes has demonstrated several very important facts about this approach. First, local public health leaders (physicians, nurses, administrators and IT specialists) can collaboratively define their work in terms that make sense to very disparate health departments.

“This methodology provides the tools to attain the “one public health” concept. It shows our value to the community.”

–Torney Smith,
Spokane, WA

Second, this team of innovators has shown that they can learn and collaboratively apply the business process analysis methods, that is, analyze how they do their work, why they do their work the way they do, how work can be made more effective and efficient, and how they can use consistent process definitions to establish meaningful performance measures. It has shown that LHD leaders see the opportunity for defining information system requirements in ways that are consistently defined across LHDs.

Third, recognizing the value of a shared set of business processes and information system requirements, LHD leaders want to teach their new skills to other public health leaders. The project had an unintended consequences with long-term staying power.

Finally, LHD leaders' increased recognition of the value of doing business process analysis collaboratively will yield a unified approach and understanding of LHD work, across all LHDs.

In January, the NACCHO Information Technology Committee (now the Informatics Committee) approved a strategic plan that places this business process analysis and redesign work as their top priority, and the NACCHO Executive Committee has made informatics one of five strategic priorities for the association, ensuring that informatics will be incorporated into LHDs' list of priorities. They are seeking support from federal agencies, as well as foundations, to advance informatics capacity within LHDs.

It is essential that informatics principles and the collaborative approach to requirements development be widely understood if public health agencies are to develop the capacity to develop and manage information systems that support population-based assessment, assurance, and policy development functions of LHDs. In recognition of this fact, the LHD work group unanimously supported communicating the value of this methodology to public health agencies broadly, and with sponsorship of NACCHO and support from the Public Health Informatics Institute, developed a Web conference and workshop to diffuse what they had learned to their peers at other public health agencies.

These are fundamental realizations that will empower a changed and improved public health information infrastructure and workforce informatics competencies, and will guide the connection of local public health to electronic connectivity and interoperability with health care and other public health partners.

“Business process analysis is the glue that holds public health together. It provides connectedness.”

– Bill Stephens,
Tarrant County, TX



APPENDIX A.

Operational Definition of a functional local health department

Governmental public health departments are responsible for creating and maintaining conditions that keep people healthy. At the local level, the governmental public health presence, or “local health department,” can take many forms.¹ Furthermore, each community has a unique “public health system” comprising individuals and public and private entities that are engaged in activities that affect the public’s health. Regardless of its governance or structure, regardless of where specific authorities are vested or where particular services are delivered, everyone, no matter where they live, should reasonably expect the local health department to meet certain standards.²

A FUNCTIONAL LOCAL HEALTH DEPARTMENT:

- Understands the specific health issues confronting the community, and how physical, behavioral, environmental, social, and economic conditions affect them.
- Investigates health problems and health threats.
- Prevents, minimizes, and contains adverse health effects from communicable diseases, disease outbreaks from unsafe food and water, chronic diseases, environmental hazards, injuries, and risky health behaviors.
- Leads planning and response activities for public health emergencies.
- Collaborates with other local responders and with state and federal agencies to intervene in other emergencies with public health significance (e.g., natural disasters).

- Implements health promotion programs.
- Engages the community to address public health issues.
- Develops partnerships with public and private healthcare providers and institutions, community-based organizations, and other government agencies (e.g., housing authority, criminal justice, education) engaged in services that affect health to collectively identify, alleviate, and act on the sources of public health problems.
- Coordinates the public health system's efforts in an intentional, non-competitive, and non-duplicative manner.
- Addresses health disparities.
- Serves as an essential resource for local governing bodies and policymakers on up-to-date public health laws and policies.
- Provides science-based, timely, and culturally competent health information and health alerts to the media and to the community.
- Provides its expertise to others who treat or address issues of public health significance.
- Ensures compliance with public health laws and ordinances, using enforcement authority when appropriate.
- Employs well-trained staff members who have the necessary resources to implement best practices and evidence-based programs and interventions.
- Facilitates research efforts, when approached by researchers, that benefit the community.
- Uses and contributes to the evidence base of public health.
- Strategically plans its services and activities, evaluates performance and outcomes, and makes adjustments as needed to continually improve its effectiveness, enhance the community's health status, and meet the community's expectations.

All local health departments (LHDs),¹ as governmental entities, derive their authority and responsibility from the state and local laws that govern them. Accordingly, all LHDs exist for the common good and are responsible for demonstrating strong leadership in the promotion of physical, behavioral, environmental, social, and economic conditions that improve health and well-being; prevent illness, disease, injury, and premature death; and eliminate health disparities.³ However, in the absence of specific, consistent standards regarding how LHDs fulfill this responsibility, the degree to which the public's health is protected and improved varies widely from community to community.

These standards describe the responsibilities that every person, regardless of where they live, should reasonably expect their LHD to fulfill. They have been developed within nationally recognized frameworks⁴ and with input from public health professionals and elected officials⁵ from across the country. The standards provide a framework by which LHDs are accountable to the state health department, the public they serve, and the governing bodies (e.g., local boards of health, county commissioners, and mayors) to which they report. In meeting the standards, LHDs employ strategies that are evidence-based and informed by best practices, and they operate according to the highest level of professionalism and ethics to inspire public confidence and trust.

A number of factors contribute to the variability of how LHDs operate; specifically capacity, authority, resources, and composition of the local public health system:

- The LHD may have the capacity to perform all of the functions on its own; it may call upon the state to provide assistance for some functions; it may develop arrangements with other organizations in the community or with neighboring LHDs to perform some functions; or it may control the means by which other entities perform some functions.
- Government agencies other than the LHD may have the authority to perform services that affect public health.
- Resources for public health may be housed in a different agency.
- Each LHD jurisdiction is served by its own unique public health system: public and private health care providers, businesses, community organizations, academic institutions, and media outlets that all contribute to the public's health.

As a result of these differences, how LHDs meet the standards—whether they directly provide a service, broker particular capacities, or otherwise ensure that the necessary work is being done—will vary. Regardless of its specific capacity, authority, and resources, and regardless of the particular local public health system, the LHD has a consistent responsibility to intentionally coordinate all public health activities and lead efforts to meet the standards.

The standards are a guide to the fundamental responsibilities of LHDs, allowing for varied structural characteristics of LHDs (e.g., governance, staffing patterns, size of the population served, etc.), and recognizing that each LHD may have other duties unique to meeting the public health needs of the community it serves. Several states have developed, or are in the process of developing, state-specific standards for LHDs, and the National Public Health Performance Standards Program (NPHPSP) includes standards for local public health systems. NACCHO analyses of several state initiatives and the NPHPSP have shown a high level of consistency between these efforts and NACCHO's nationally developed standards.

Currently, not all LHDs have the capacity to meet the standards. Many concerns have been raised regarding the costs of developing the capacity, and the implications for LHDs that do not meet the standards. It is difficult to anticipate costs, and it is equally important to understand that improvements in capacity can be made in the absence of new resources. NACCHO is committed to collecting and sharing models of LHDs and LHD arrangements to demonstrate various means to enhance local governmental public health capacity. Furthermore, NACCHO is currently participating in a national dialogue on whether to establish a voluntary national accreditation system for state and local health departments,⁶ and is supportive of such an effort.⁷ The results of this dialogue may generate implications for LHDs not meeting the standards.

NACCHO urges LHDs to embrace these standards both as a means of working with their state health departments, communities, and governing bodies to develop a more robust governmental public health capacity, and as a means of holding themselves uniformly accountable to the public they serve.

1. MONITOR HEALTH STATUS AND UNDERSTAND HEALTH ISSUES FACING THE COMMUNITY.

- a. Obtain and maintain data that provide information on the community's health (e.g., provider immunization rates; hospital discharge data; environmental health hazard, risk, and exposure data; community-specific data; number of uninsured; and indicators of health disparities such as high levels of poverty, lack of affordable housing, limited or no access to transportation, etc.).
- b. Develop relationships with local providers and others in the community who have information on reportable diseases and other conditions of public health interest and facilitate information exchange.
- c. Conduct or contribute expertise to periodic community health assessments.
- d. Integrate data with health assessment and data collection efforts conducted by others in the public health system.
- e. Analyze data to identify trends, health problems, environmental health hazards, and social and economic conditions that adversely affect the public's health.

2. PROTECT PEOPLE FROM HEALTH PROBLEMS AND HEALTH HAZARDS.

- a. Investigate health problems and environmental health hazards.
- b. Prevent, minimize, and contain adverse health events and conditions resulting from communicable diseases; food-, water-, and vector-borne outbreaks; chronic diseases; environmental hazards; injuries; and health disparities.
- c. Coordinate with other governmental agencies that investigate and respond to health problems, health disparities, or environmental health hazards.
- d. Lead public health emergency planning, exercises, and response activities in the community in accordance with the National Incident Management System, and coordinate with other local, state, and federal agencies.
- e. Fully participate in planning, exercises, and response activities for other emergencies in the community that have public health implications, within the context of state and regional plans and in a manner consistent with the community's best public health interest.
- f. Maintain access to laboratory and biostatistical expertise and capacity to help monitor community health status and diagnose and investigate public health problems and hazards.
- g. Maintain policies and technology required for urgent communications and electronic data exchange.

3. GIVE PEOPLE INFORMATION THEY NEED TO MAKE HEALTHY CHOICES.

- a. Develop relationships with the media to convey information of public health significance, correct misinformation about public health issues, and serve as an essential resource.
- b. Exchange information and data with individuals, community groups, other agencies, and the general public about physical, behavioral, environmental, social, economic, and other issues affecting the public's health.
- c. Provide targeted, culturally appropriate information to help individuals understand what decisions they can make to be healthy.
- d. Provide health promotion programs to address identified health problems.

4. ENGAGE THE COMMUNITY TO IDENTIFY AND SOLVE HEALTH PROBLEMS.

- a. Engage the local public health system in an ongoing, strategic, community-driven, comprehensive planning process to identify, prioritize, and solve public health problems; establish public health goals; and evaluate success in meeting the goals.
- b. Promote the community's understanding of, and advocacy for, policies and activities that will improve the public's health.
- c. Support, implement, and evaluate strategies that address public health goals in partnership with public and private organizations.
- d. Develop partnerships to generate interest in and support for improved community health status, including new and emerging public health issues.
- e. Inform the community, governing bodies, and elected officials about governmental public health services that are being provided, improvements being made in those services, and priority health issues not yet being adequately addressed.

5. DEVELOP PUBLIC HEALTH POLICIES AND PLANS.

- a. Serve as a primary resource to governing bodies and policymakers to establish and maintain public health policies, practices, and capacity based on current science and best practices.
- b. Advocate for policies that lessen health disparities and improve physical, behavioral, environmental, social, and economic conditions in the community that affect the public's health.
- c. Engage in LHD strategic planning to develop a vision, mission, and guiding principles that reflect the community's public health needs, and to prioritize services and programs.

6. ENFORCE PUBLIC HEALTH LAWS AND REGULATIONS.

- a. Review existing laws and regulations and work with governing bodies and policymakers to update them as needed.
- b. Understand existing laws, ordinances, and regulations that protect the public's health.
- c. Educate individuals and organizations on the meaning, purpose, and benefit of public health laws, regulations, and ordinances and how to comply.
- d. Monitor, and analyze over time, the compliance of regulated organizations, entities, and individuals.
- e. Conduct enforcement activities.
- f. Coordinate notification of violations among other governmental agencies that enforce laws and regulations that protect the public's health.

7. HELP PEOPLE RECEIVE HEALTH SERVICES.

- a. Engage the community to identify gaps in culturally competent, appropriate, and equitable personal health services, including preventive and health promotion services, and develop strategies to close the gaps.
- b. Support and implement strategies to increase access to care and establish systems of personal health services, including preventive and health promotion services, in partnership with the community.
- c. Link individuals to available, accessible personal healthcare providers (i.e., a medical home).

8. MAINTAIN A COMPETENT PUBLIC HEALTH WORKFORCE.

- a. Recruit, train, develop, and retain a diverse staff.
- b. Evaluate LHD staff members' public health competencies,⁸ and address deficiencies through continuing education, training, and leadership development activities.
- c. Provide practice and competency based educational experiences for the future public health workforce, and provide expertise in developing and teaching public health curricula, through partnerships with academia.
- d. Promote the use of effective public health practices among other practitioners and agencies engaged in public health interventions.
- e. Provide the public health workforce with adequate resources to do their jobs.

9. EVALUATE AND IMPROVE PROGRAMS AND INTERVENTIONS.

- a. Develop evaluation efforts to assess health outcomes to the extent possible.
- b. Apply evidence-based criteria to evaluation activities where possible.
- c. Evaluate the effectiveness and quality of all LHD programs and activities and use the information to improve LHD performance and community health outcomes.
- d. Review the effectiveness of public health interventions provided by other practitioners and agencies for prevention, containment, and/or remediation of problems affecting the public's health, and provide expertise to those interventions that need improvement.

10. CONTRIBUTE TO AND APPLY THE EVIDENCE BASE OF PUBLIC HEALTH.

- a. When researchers approach the LHD to engage in research activities that benefit the health of the community,
 - i. Identify appropriate populations, geographic areas, and partners;
 - ii. Work with them to actively involve the community in all phases of research;
 - iii. Provide data and expertise to support research; and,
 - iv. Facilitate their efforts to share research findings with the community, governing bodies, and policymakers.
- b. Share results of research, program evaluations, and best practices with other public health practitioners and academics.
- c. Apply evidence-based programs and best practices where possible.

Public health professionals and the communities they serve deserve a common set of expectations about local health departments (LHDs). More than 600 governmental public health professionals and local and state officials representing 30 different states contributed to this definition, which will be a living document.

By describing the functions of LHDs, the definition will help citizens and residents understand what they can reasonably expect from governmental public health in their communities. The definition also will be useful to elected officials, who need to understand what LHDs do and how to hold them accountable. And, the definition will aid LHDs in obtaining their fair share of resources.

WHAT ARE NACCHO'S NEXT STEPS?

NACCHO's first step is education and communication about the definition with LHDs, local boards of health, state health departments, federal public health agencies, and local and state elected officials. Metrics will be developed to allow LHDs to measure their progress in achieving the standards. NACCHO will also gather examples of how LHDs use the definition. The Exploring Accreditation project will examine the use of the standards as the basis for a voluntary national accreditation system for LHDs of all sizes and structures.

WHAT ACTION STEPS CAN YOU TAKE?

LHDs can use the definition and standards to assess local efforts, measure performance, expand functions, enhance activities, and communicate about the role of local public health to their governing bodies, elected officials, and community.

NACCHO has developed a set of three fact sheets describing the role of local public health and a communications toolkit as part of this project. Both the toolkit and the fact sheets are available on NACCHO's Web site (see the following column). We encourage LHDs to download the fact sheets and communications toolkit.

Finally, your experiences with the definition will inform and help shape the implementation phase of this effort. Please submit examples of how LHDs have met the definition (particularly those involving the development of shared capacity and/or resources), applied the tools in the communications toolkit, or otherwise used the definition or related materials. You can find additional materials and submit examples online at: www.naccho.org/topics/infrastructure/operationaldefinition.cfm.

For more information about this project, please contact NACCHO at (202) 783-5550 and ask to speak with the Operational Definition program manager, or e-mail operationaldefinition@naccho.org.

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NACCHO thanks the following organizations for their contributions to the development of the operational definition: the Association of State and Territorial Health Officials, the Association of State and Territorial Local Health Liaison Officials, the Centers for Disease Control and Prevention, the Health Resources and Services Administration, the National Association of Counties, the National Association of Local Boards of Health, the National Conference of State Legislatures, the National Governors Association, the National League of Cities, and the U.S. Conference of Mayors.

REFERENCES

- ¹ For the purposes of these standards, an LHD is defined as the governmental public health presence at the local level. It may be a locally governed health department, a branch of the state health department, a state-created district or region, a department governed by and serving a multi-county area, or any other arrangement that has governmental authority and is responsible for public health functions at the local level.
- ² See “Local Health Department Standards,” Pages 4 through 9, for further description of the functions captured in this definition.
- ³ For the purposes of this document, “health disparities” refer to differences in populations’ health status that are avoidable and can be changed. These differences can result from social and/or economic conditions, as well as public policy. Examples include situations whereby hazardous waste sites are located in poor communities, there is a lack of affordable housing, and there is limited or no access to transportation. These and other factors adversely affect population health.
- ⁴ The standards are framed around the Ten Essential Public Health Services, which have been reworded to more accurately reflect the specific LHD roles and responsibilities related to each category. In addition, these standards are consistent with the National Public Health Performance Standards Program (NPHPSP), serving to specify the role of governmental LHDs while the NPHPSP addresses the public health system as a whole.
- ⁵ This includes those from local health departments, local boards of health, state health departments, and federal public health agencies; as well as county commissioners, mayors, state legislators, and gubernatorial health advisors.
- ⁶ www.exploringaccreditation.org
- ⁷ NACCHO Resolution 04-06 further describes NACCHO’s stance on accreditation.
- ⁸ As defined by the Core Public Health Competencies developed by the Council on Linkages between Academia and Public Health Practice.

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APPENDIX B.

Context Diagrams for Nine Business Processes of Local Health Departments

The LHD work group developed context diagrams for nine LHD business processes. The context diagrams reflect relationships and boundaries that exist between individuals and groups within a work environment, and show how they relate to one another to achieve the goals and objectives of the process.

“Context diagramming is an efficient, transparent, non-threatening, inclusive method to organize understanding. A picture truly is worth a thousand words.”

– Pete Kitch

Billing and Accounts Receivable

Business Process Overview

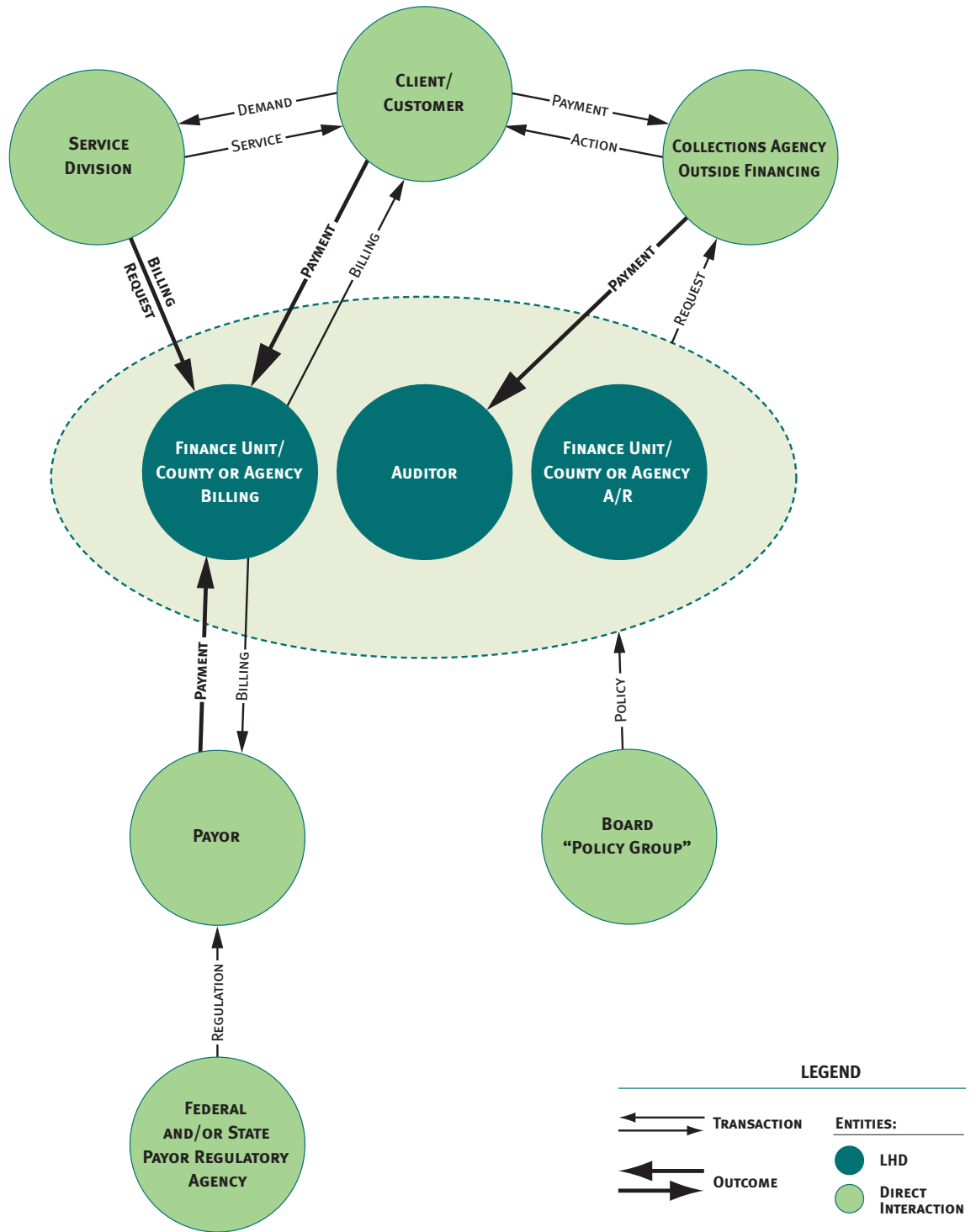
The Billing and Accounts Receivable business process enables public health departments to assure that their fiscal process is in compliance with all legal and policy requirements while supporting the strategic goals of public health. Government Auditing Standards, GAAP, OMB Circ-A-133 as well as city, country, and state laws and charters govern the activities within this process. This business process is triggered when a service is requested by or provided to a customer. Time and activity schedules are typical inputs for this business process. Invoices and reports are common outputs.

Summary of Business Process Tasks

- Document service and A/R by date
- Conduct secondary billing
- Document and credit payment
- Send final notices
- Perform write-offs
- Submit reports

Objectives and Outcomes

Typical objectives for the Billing and Accounts Receivable business process are to process accounts receivable in a timely, efficient, and accurate manner. These objectives help to assure proper cash flow and the ability of the LHD to support budgeted public health activities. The billing and A/R process cycle is considered complete for an account when a payment is received. Performance indicators include the tracking of payments, timeliness of received payments, and indicators of successful compliance and auditing.



Note: One or more of the entities in the dotted oval may reside within the LHD or may be a separate agency.

Communicable Disease and Clinical Intervention & Treatment

Business Process Overview

The goal of the Communicable Disease and Clinical Intervention & Treatment business process is to promote and protect the population's health through early identification, treatment, and resolution of health conditions. Investigations are triggered by a client presenting with symptoms or risk factors, scheduled screening, receipt of laboratory test results, physician or other health service provider reports of suspicions and observations, information from neighboring health departments, or identification of a communicable disease incident via the health department Surveillance business process.

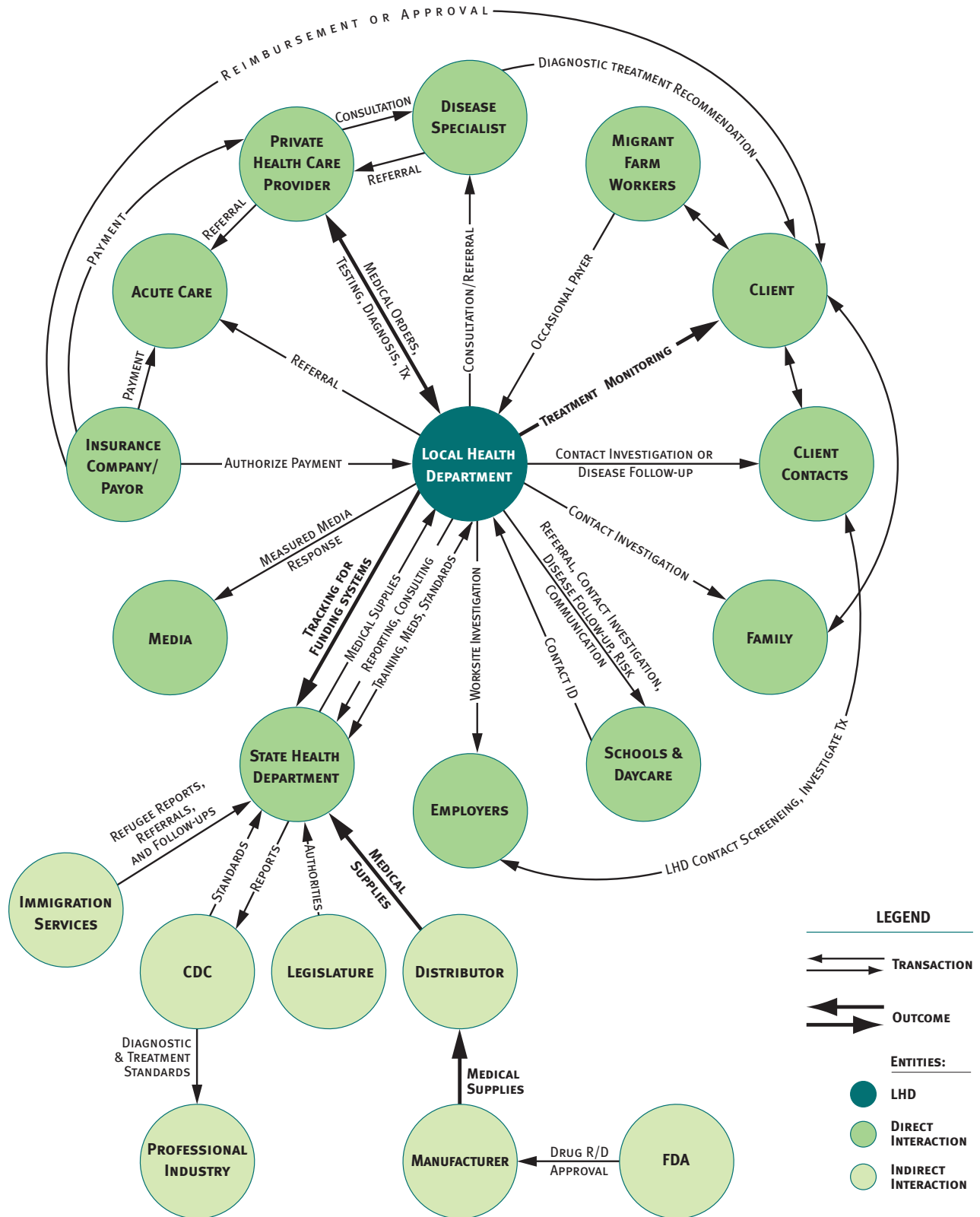
Summary of Business Process Tasks

This business process encompasses the “standard” epidemiology communicable disease and clinical intervention, case management, and treatment activities, including both individual cases and outbreaks.

- Determine the level of epidemiology resources needed in a given jurisdiction
- Create and maintain agreements with the state health department and/or CDC for use of state or federal epidemiology resources in outbreak situations
- Provide appropriate training for health department epidemiology personnel
- Perform epidemiology investigation and case management activities until all cases have been treated and exposed contacts cleared.
- Provide health counseling, information and referral
- Perform client intake
- Prepare inventory
- Communicate risks
- Administer treatment
- Document administration
- Schedule follow-up visits
- Investigate potential adverse events
- Collect appropriate fees

Objectives and Outcomes

The objective in a communicable disease incident (or outbreak) is to stop the spread of the disease by treating infected persons and tracking all infected person contacts. The transactions on the context diagram that represent completion of the process are administration of treatment and completed tracking for funding streams. Typical performance indicators include tracking the timely completion of screening, diagnosis, and treatment.



Community Health Assessment

Business Process Overview

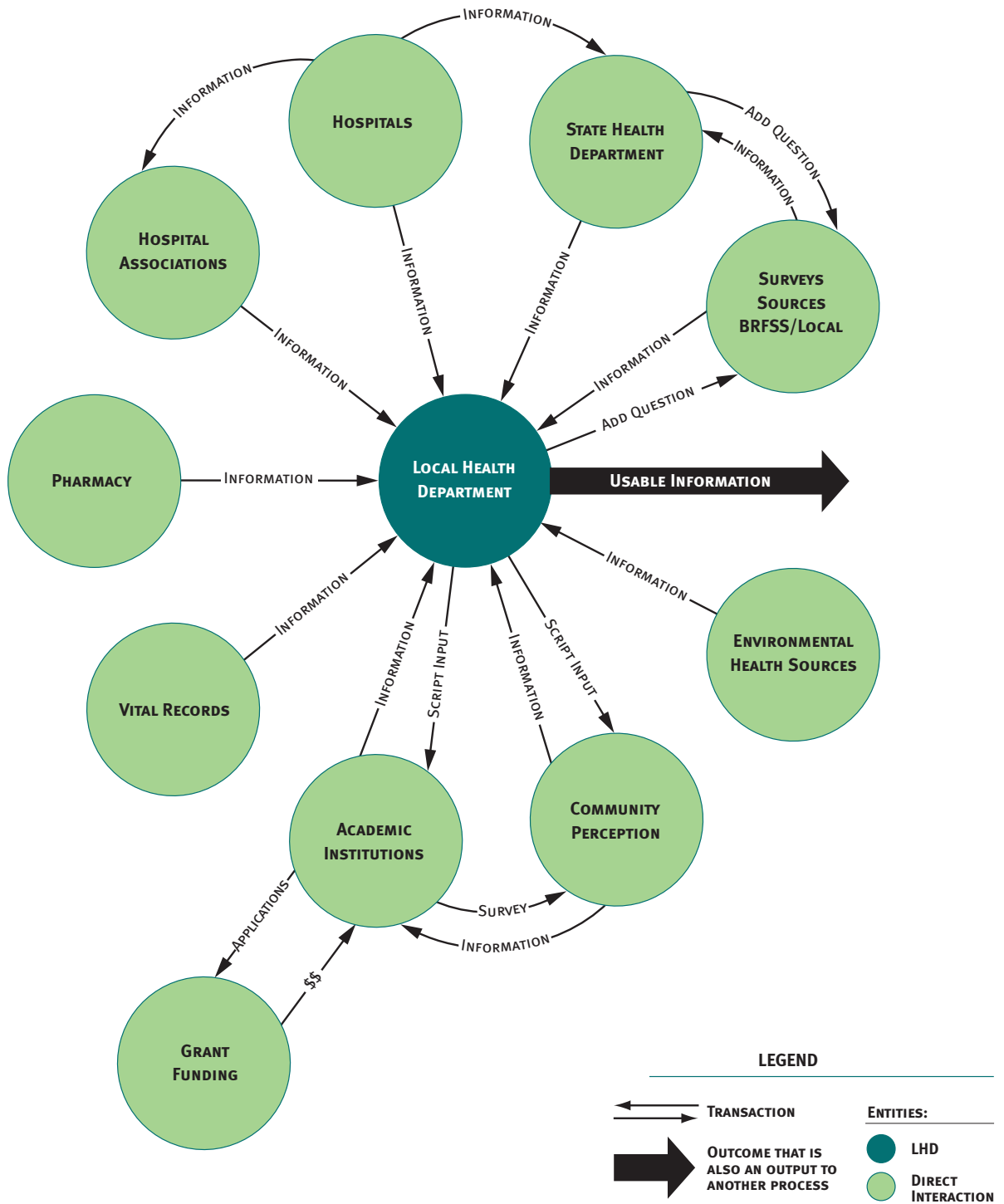
The goal of the Community Health Assessment business process is to improve public health through increased knowledge by providing assistance and support in assessing the health status and needs of the community. The need for community health assessment arises in response to requests or demands by grant funders, law-making entities, and environmental health agencies. Within this business process, the LHD is responsible for collection and analysis of general population data; receiving pertinent information from external sources for the purpose of evaluation; assessment of community priorities; and communication of information to relevant entities.

Summary of Business Process Tasks

- Collect general population data via surveys, studies, focus groups and existing data
- Understand the issues and perspectives of the community. For example, lifestyles and cultures of specific ethnic groups, prevalence of disease among certain population categories
- Develop Community Health Needs Assessment document
- Support policy development associated with findings
- Evaluate progress towards initiatives

Objectives and Outcomes

The encompassing objective of Community Health Assessment is to provide information that enables stakeholders to effectively set health priorities, establish policy, and provide education that will ultimately improve health outcomes of the target population. The key outcome of this business process is usable information provided by the health department to stakeholders.



Environmental & Safety Inspections

Business Process Overview

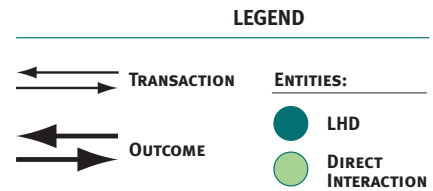
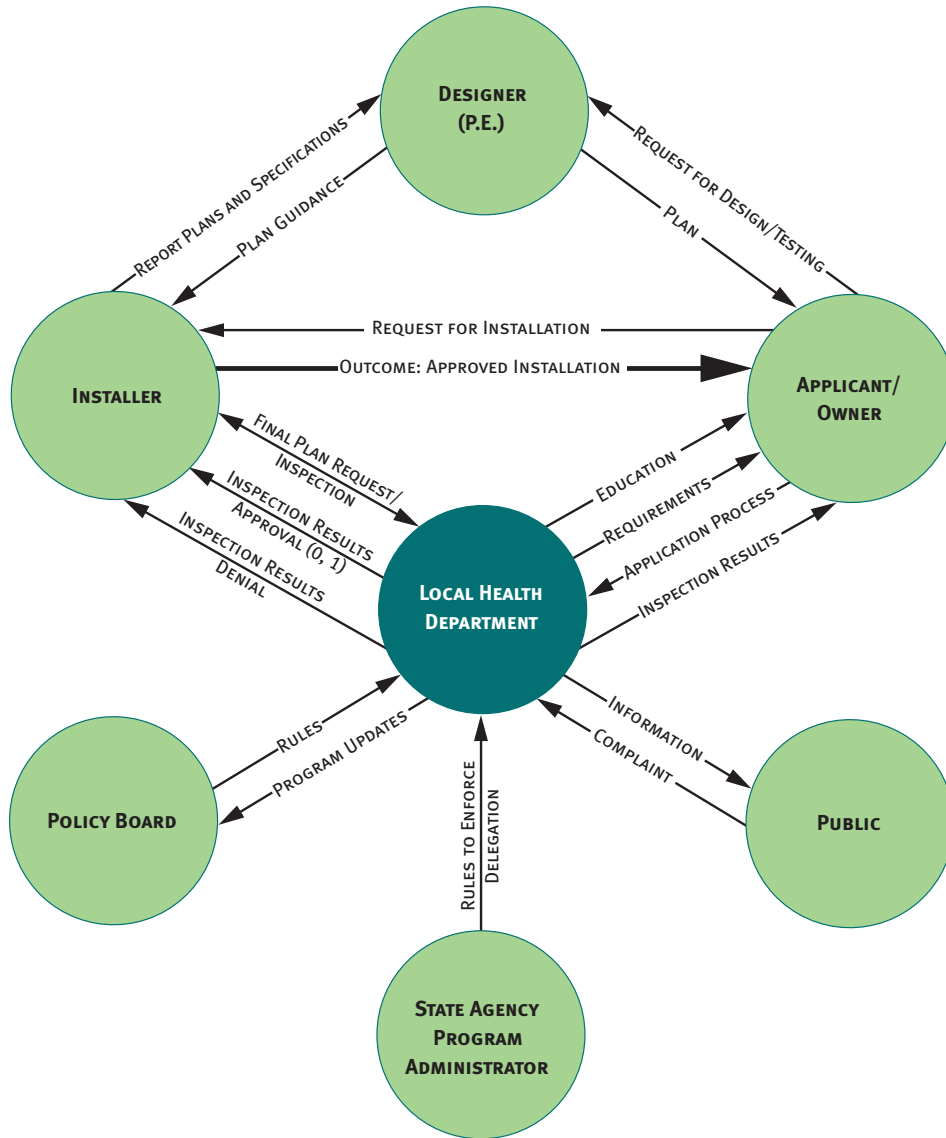
The goal of the Environmental & Safety Inspections business process is to protect the public's health and safety from any adverse affects through environmental exposure. Inspection is initiated by a request for an operating license or as a result of an alert from an incident report through law enforcement. The business process is also invoked by regularly scheduled inspections of operating establishments. In this business process definition, the LHD is responsible for conducting routine and special alert inspections as well as documenting and reporting findings, and invoking corrective action for violations.

Summary of Business Process Tasks

- Review file and get information from inspection history. Ensure corrections to previous violations have been made.
- Prepare inspector's checklist and arrive at the food establishment
- Interview operators to gain information about the establishment's operations
- Observe operations or review plans
- Checking compliance with regulations
- Review findings with operators and potential operators
- Prepare inspection report representing compliance status
- Review findings with environmental health professionals
- Schedule subsequent inspections
- Provide programs to ensure certified inspectors.

Objectives and Outcomes

The objective of the Environmental & Safety Inspections business process is to inspect proposed or existing facilities to find and prevent potential sources of disease or injury. The major outcome is the absence of environmental risk as a result of operation. This business process is complete when an inspection results in a certification for operation or an issuance of corrective action.



Field Nursing

Business Process Overview

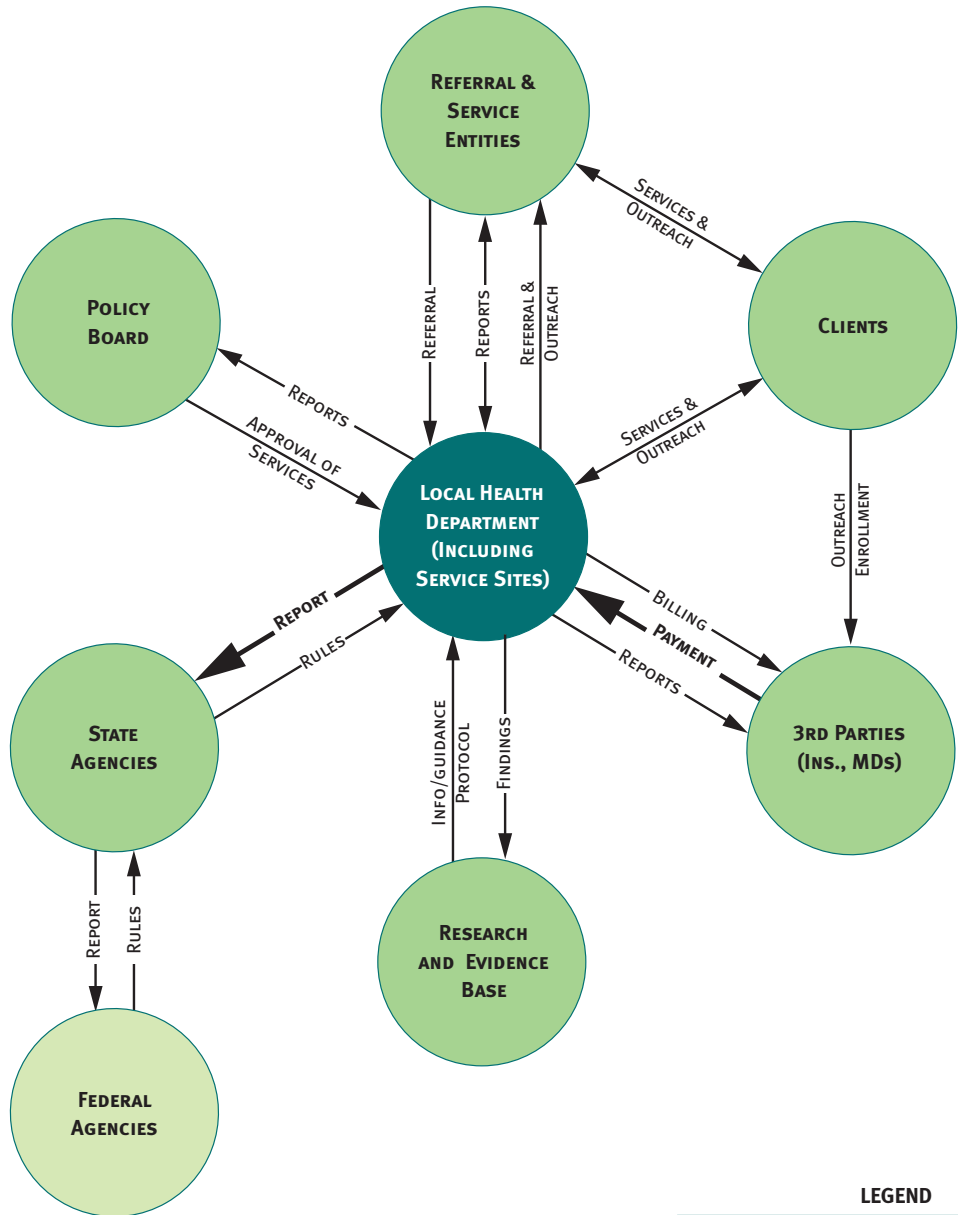
The Field Nursing business process allows public health departments to work toward the improvement of health and psychosocial well-being for at-risk families. This business process is regulated by state laws for child welfare and protection, health insurance eligibility guidelines; birth to 3 early intervention standards; evidence-based interventions; and Healthy People 2010 Goals. Referrals from service and referral entities trigger this business process. That same referral information is the process's primary input. Outputs typically include information regarding number of visits, number of clients, reports to payors, follow-up to referring entity, periodic surveillance reports to policy board, and referrals to social services and community resources.

Summary of Business Process Tasks

- Intake/Referral information
- Scheduling
- Assessment
- Family engagement
- Health education and counseling
- Case management
- Evaluation of service outcomes
- Documentation
- Billing
- Advocacy

Objectives and Outcomes

The Field Nursing business process aims to assure that 90% of all families will achieve Healthy People 2010 goals for healthy pregnancies and child development. Performance indicators for this process include lowered incidence of low birth rates, a reduction in smoking during pregnancy, child growth and development outcomes, child maltreatment prevention (low rates of confirmed child maltreatment), increased initiation and duration of breastfeeding, mother-infant attachment, and increased family planning, particularly with regard to birth spacing.



Grantee Administration

Business Process Overview

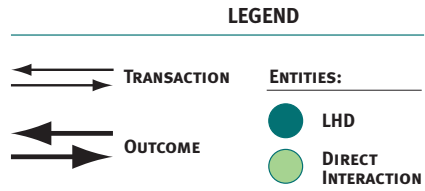
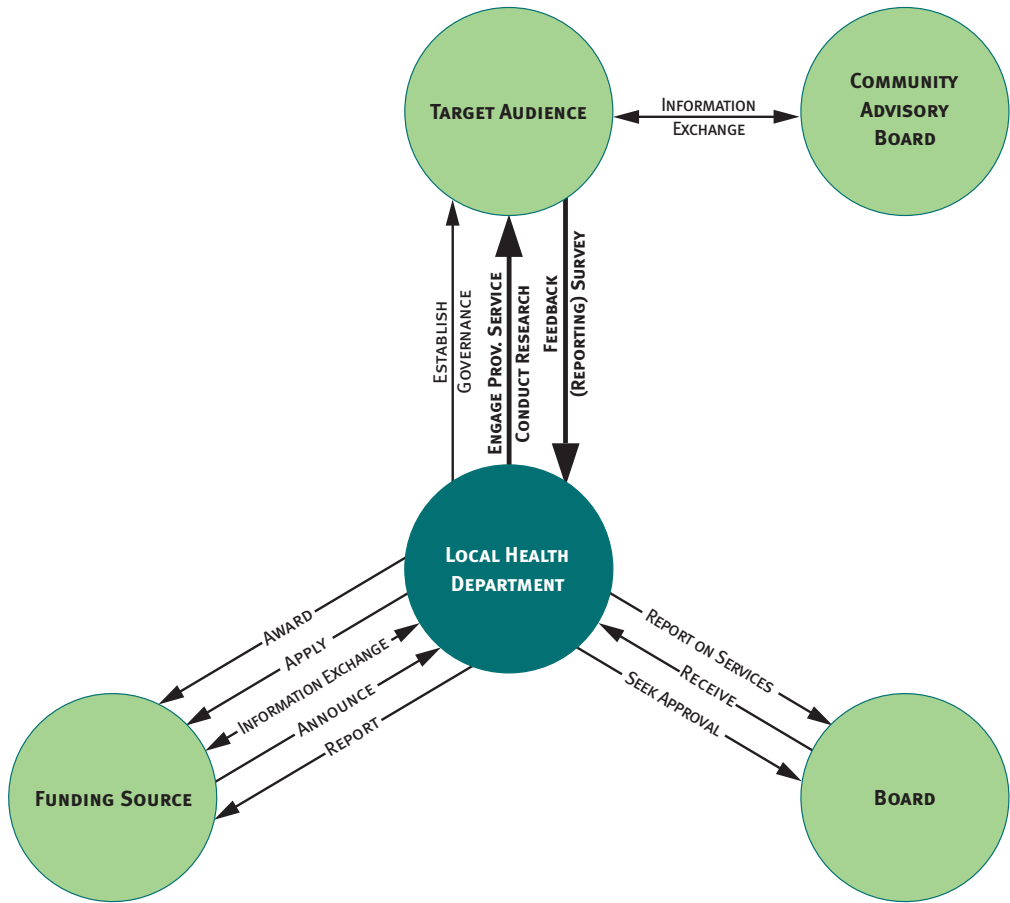
The Grantee Administration business process supports the goals of public health through accurate management of financial resources and effective use of resources. This business process operates under guidelines of grantor restrictions and allowances; local government restrictions and policies on use of grant funding. A signed and approved contract triggers this business process. The contract requirements along with grantor restrictions and audit requirements are typical inputs to the business process. The primary outputs of this business process are project reports.

Summary of Business Process Tasks

- Bill according to grant contract allowance
- Document billing date and amount
- Create accounts receivables
- Credit accounts receivables
- Generate reports
- Conduct business in compliance with audit requirements

Objectives and Outcomes

The objectives of the Grantee Administration business process include assuring grant compliance following statements of work and contract requirements and coordinating grant management to minimize the number of grants limited to one focus area, and maximizing those having the broadest focus. This business process is successfully completed when the contract goals and requirements are satisfied. Performance indicators for this process may be measured using compliance and/or financial audit results.



Grantor & Contractee Administration

Business Process Overview

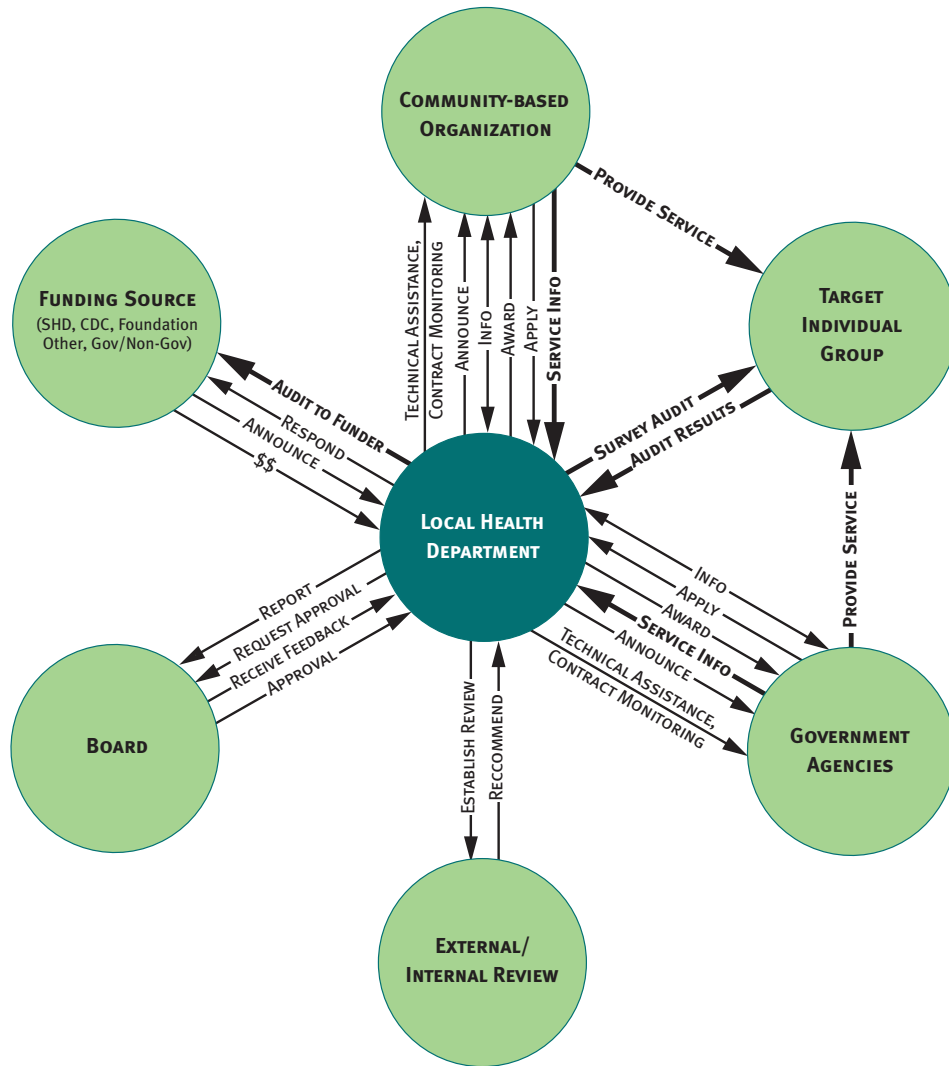
The Grantor & Contractee Administration business process supports the goals of public health by enhancing population health through new resource acquisition. This business process operates under guidelines of grantor restrictions and allowances, and local government restrictions and policies on use of grant funding. The announcement of funding for services of interest to an agency triggers this process. The statement of work and contract requirements are inputs along with payment for services. Contract deliverables and approved reports are typical outputs for this business process.

Summary of Business Process Tasks

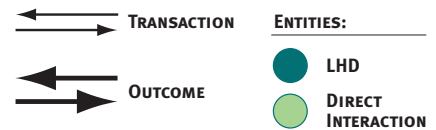
- Pay per deliverable and report completion of grant policy
- Evaluate and track grantee compliance
- Establish and communicate reporting process for grantees
- Establish and communicate payment process to grantees

Objectives and Outcomes

The objectives of the Grantor & Contractee Administration business process include assuring grant compliance following statements of work and contract requirements; coordinating grant management to minimize the number of grants limited to one focus area and maximizing those having the broadest focus; and engaging the service community to provide resources and services. This business process is successfully completed when the contract goals and requirements are satisfied. Performance indicators for this process may be measured using compliance and/or financial audit results.



LEGEND



Immunization Administration

Business Process Overview

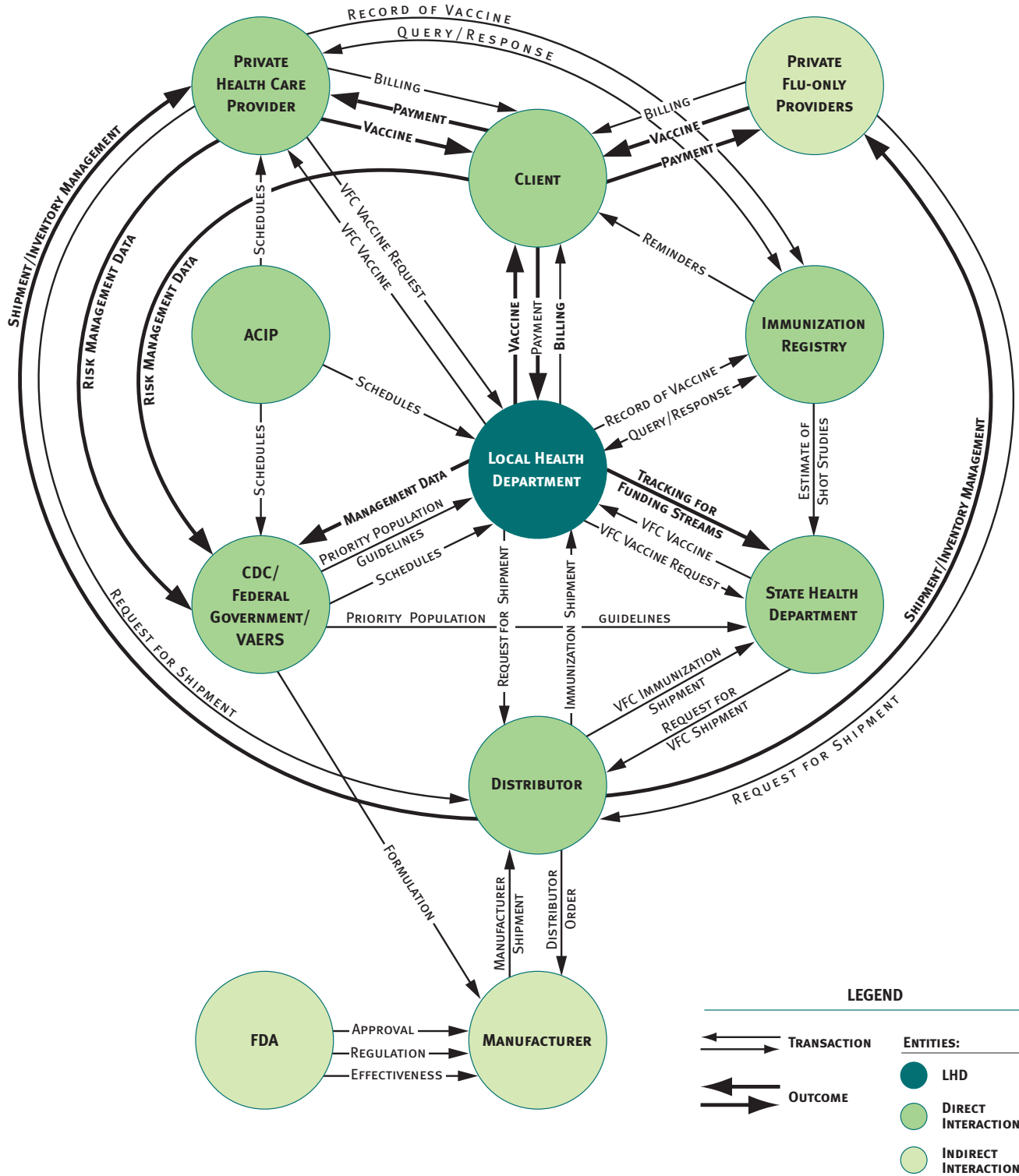
The Immunization Administration business process encompasses the activities associated with public health's role in promoting and protecting the health of a target population through the reduction and elimination of vaccine-preventable diseases. The need for immunizations is specified as a request for service. This request may be the result of an initial request or a follow-up visit scheduled during a previous service. The LHD is responsible for the staffing, inventory, and maintenance of the necessary dispensing sites, as well as the administration and documentation of the vaccines provided to the target population.

Summary of Business Process Tasks

- Intake
- Assessment
- Preparation
- Administer Vaccine
- Education
- Scheduled follow-up
- Reporting
- Inventory management

Objectives and Outcomes

The objective for an Immunization Administration business process might be to maintain a designated percentage for compliance with ACIP immunization recommendations. This process is complete when vaccine productivity targets and immunization protocol targets for registered clients are met and tracking is complete for funding streams. Performance indicators include inventory measurement, fees collected, and risk management data distribution.



Pricing

Business Process Overview

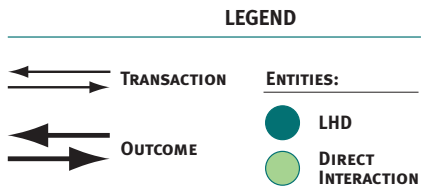
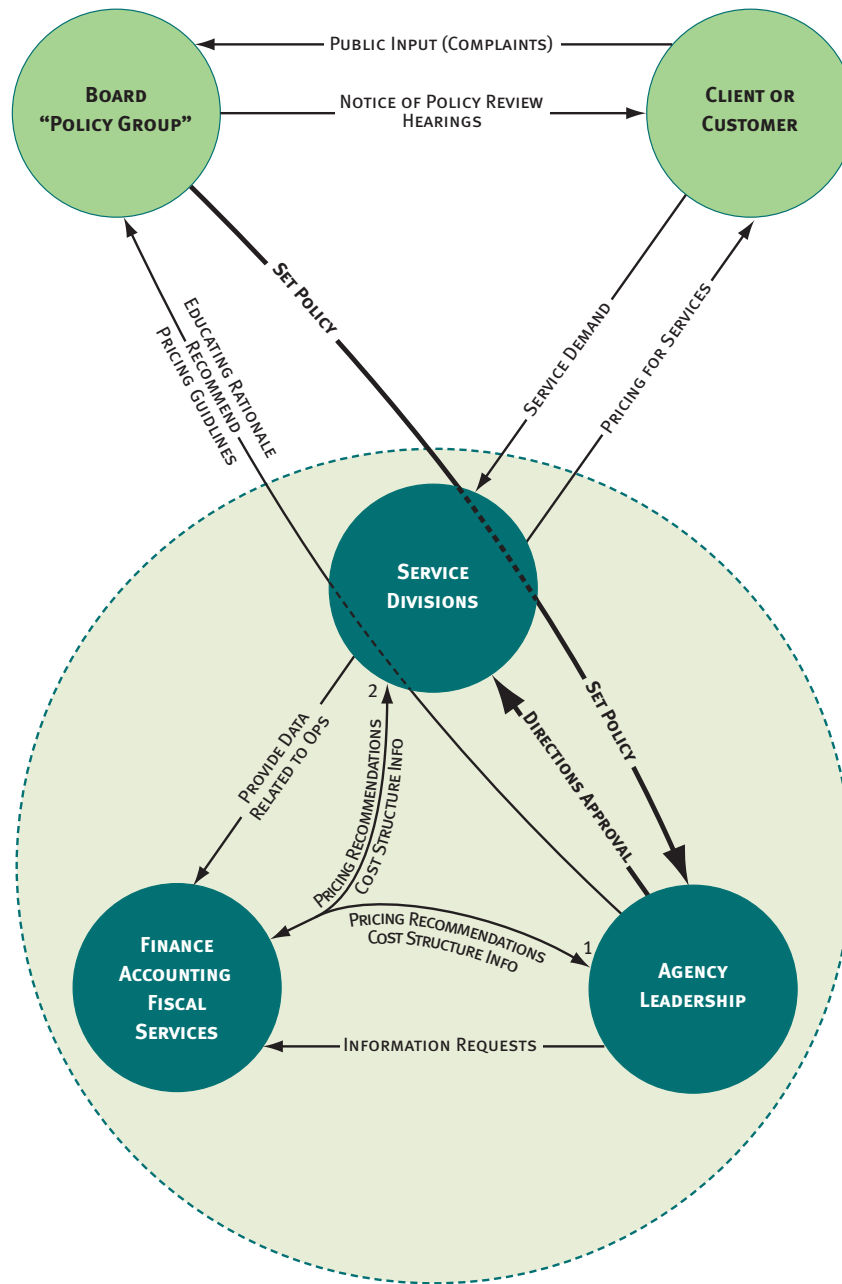
The goal of the Pricing business process is to establish fees for services that allow the extension of public fund sources within community public health standards. This process adheres to board directives and policy, city and county ordinances and regulations, Medicare and Medicaid rate schedules, usual and customary fee standards, and the U.S. poverty level. The business process is initiated through a board request or other need to set a fee schedule. Algorithms and calculation masters are common inputs. Fee schedules and price list are typical outputs.

Summary of Business Process Tasks

- Setting pricing for services
- Monitoring cost
- Monitoring salaries and overhead
- Set service price lists
- Prepare financial need assessment
- Create income-based fee schedules

Objectives and Outcomes

The objective for the Pricing business process is to establish fees for services that meet all legal requirements, including schedules that allow appropriate access to services to meet the public health needs of the community. Utilized fee schedules are the outcomes of this business process.



Note: One or more of the entities in the dotted oval may reside within the LHD or may be a separate agency.

Glossary of Terms

AUTOMATING. Attempting to reduce an existing manual job to a set of computer programs that can replace the existing manual effort with the minimum of human effort or understanding.

BEST PRACTICE. A technique or methodology that, through experience and research, has shown to reliably lead to a desired result.

BUSINESS PRACTICE. Habitual or customary actions or acts in which an organization engages. Also used in the plural to describe a set of business operations that are routinely followed.

BUSINESS PROCESS. A set of related work tasks designed to produce a specific desired programmatic (business) result. The process involve multiple parties internal or external to the organization and frequently cuts across organization boundaries.

BUSINESS PROCESS ANALYSIS. The effort to understand an organization and its purpose while identifying the activities, participants and information flows that enable the organization to do its work. The output of the business process analysis phase is a model of the business processes consisting of a set of diagrams and textual descriptions to be used for design or redesign of business processes.

BUSINESS PROCESS REDESIGN. The effort to improve the performance of an organization's business processes and increase customer satisfaction. Business process redesign seeks to restructure tasks and workflow to be more effective and more efficient.

BUSINESS RULES. A set of statements that define or constrain some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior of the health agency (business).

CONTEXT. Organizational groupings or entities involved in the business process and how they relate to one another to achieve the goals and objectives of the process.

CONTEXT DIAGRAM (ENTITY DIAGRAM). A non-technical graphical tool for recording context information. It consists of the following elements: (1) entity—a person or group of people (e.g., accounts payable clerk or accounts payable department) who performs one or more tasks involved in a process. (2) Transaction: Information exchanges between entities. Entities are represented by circles and transactions are represented by arrows. A context diagram may involve all the transactions of a single user of a system or of multiple users. Usually, single-user diagrams are attempted first (for ease), but multi-user diagrams are needed to get a good look at an entire process.

CRITICAL TASK. An action or set of actions that adds an identifiable value to a given business process objective.

CUSTOMER. Groups or individuals who have a business relationship with the organization—those who receive and use or are directly affected by the services of the organization. Customers include direct recipients of treatment and services, internal customers who provide services and resources for final recipients, and other organizations and entities that interact with an LHD to provide treatment and services.

ENTITY. A person or a group of people who performs one or more tasks involved in a process. The entities are the participants in the process. Entities are represented by circles in context diagrams.

FRAMEWORK. A defined support structure in which other components can be organized and developed. A logical structure for classifying and organizing complex information. A system of rules, ideas or principles that provides a unified view of the needs and functionality of a particular service.

FUNCTION. A repeatable task series or operation that is used in more than one instance and can be shared across multiple business processes.

GOAL. The major health goal that the business process supports. The goal is the end state to be achieved by the work of the health agency and should be defined in terms of the benefits provided to the community/population or individual/client.

INFORMATION SYSTEM. A tool that supports work.

INPUT(S). Information received by the business process from external sources. Inputs are not generated within the process.

LOGICAL DESIGN. Logical design describes textually and graphically how an information system must be structured to support the requirements. Logical design is the final step in the process prior to physical design, and the products provide guidelines from which the programmer can work.

OBJECTIVE. A concrete statement describing what the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and understand how the process is performing towards achieving the specific objective. A well-worded objective will be SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time-bound).

OPERATION. A task series that completes a transaction.

OUTCOME. The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, decrease in incidents, etc.). An outcome can be, but is not necessarily, an output of the process.

OUTPUT(S). Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.

RESULT. A task output that may be used in one of three ways: (a) as an input to the next sequential step, (b) as an input to a downstream step within a task series; or (c) as the achievement of an organizational objective.

REQUIREMENTS. The specific things the information system must do to make the process efficient and achieve its purpose.

REQUIREMENTS DEFINITION. The purpose of requirements definition is to refine our understanding of the workflow and then to define database outputs needed to support that work. Requirements definition serves to specifically define the functionality to be supported. In addition, the physical constraints are examined, and the specific project scope determined. Requirements definition answers the question: “How would you see information systems supporting Task X?”

REQUIREMENTS DEVELOPMENT METHODOLOGY. A logical, step-wise approach to think through the tasks that are performed to meet the specific public health objectives (analyze business processes), rethink the tasks to increase effectiveness and efficiency (redesign business processes), and describe what the information system must do to support those tasks (define system requirements).

STAKEHOLDER. A person, group, or business unit that has a share or an interest in a particular activity or set of activities..

TASK. A definable piece of “work” that can be done at one time; i.e., what happens between the “in-box” and the “out-box” on someone’s desk. A business process is made up of a series of work tasks.

TASK FLOW DIAGRAM. Graphical description of tasks showing inputs, processes, and results for each step that makes up a task.

TASK SERIES. Any succession or progression of discrete tasks. A business process may contain more than one task series.

TASK SET. The set of tasks required to fully define the business process.

TRANSACTION. Information exchanges between entities. May also be the exchange of goods (e.g., a vaccine or payment) or services (e.g., an inspection) between two entities. Transactions are represented by arrows in context diagrams.

TRIGGER. Event, action, or state that initiates the first course of action in a business process. A trigger may also be an input, but not necessarily so.

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