

# **Out of Context: Mapping Quality Improvement Opportunities with Context Diagrams**

September 2011

**Influenced by Common Ground:  
Transforming Public Health Information Systems**

**A National Program supported by  
the Robert Wood Johnson Foundation,  
and training developed by Tracy Lockard for  
Cabarrus Health Alliance, Cabarrus County,  
North Carolina**

# Introductions

- Kathy Grantham, Business Analyst  
Minnesota Department of Health
- Margene Gunderson, Director of Community  
Health Services  
Mower County Public Health
- Terri Allen, Public Health Supervisor  
Carlton County Public Health
- Wendy Nelson, Project Manager and  
former Chief Information Officer  
Minnesota Department of Health

# Take Aways



- Context diagrams and why they are useful to Local Public Health agencies.
- How common public health information/ data exchange partners for Family Home Visiting were identified using context diagrams

# The “Business” of Public Health

- The activities you do to provide the services that meet the public health objectives of the communities you serve.
- Business **Process**:  
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.

# Typical Public Health Business Functions

- APR/General Ledger
- Billing
- Budgeting
- Case Management
- Child/Maternal Services
- Clinical Operations
- Clinical, Eligibility checking
- Clinical, Registration
- Community Health
- Dental Clinic support
- Emergency Preparedness
- Environmental Health
- Family Planning
- Grant Management/Reporting
- Health Education
- Home Health
- Hospice
- HR
- Immunization Management
- Laboratory Operations
- Nutrition Management
- Outcomes Measurement
- Pharmacy Management
- Provider Relations
- Public Health Staff Training
- Referral
- School Nurse Program
- Targeted Home Visiting
- WIC

# Targeted/Family Home Visiting

- Collects key data common to most other client-based processes
- Most agencies are performing some form of this public health function

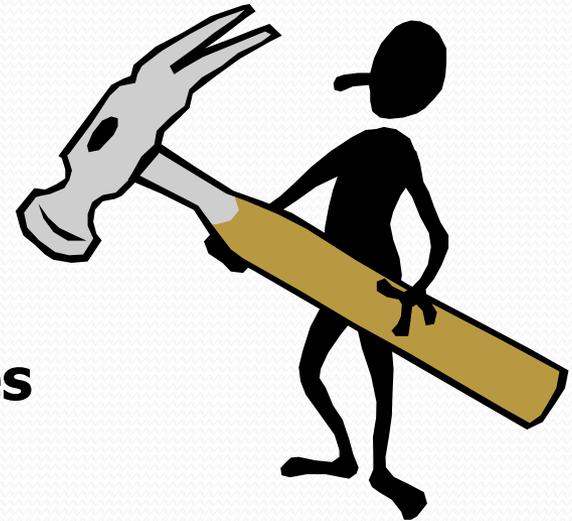
# What is Business Analysis?

The discipline of **identifying business needs** and **determining solutions** to business problems.

Solutions often include a systems development component, but may also consist of **process improvement**, organizational change or strategic planning and policy development.

# Business Process Analysis Tools

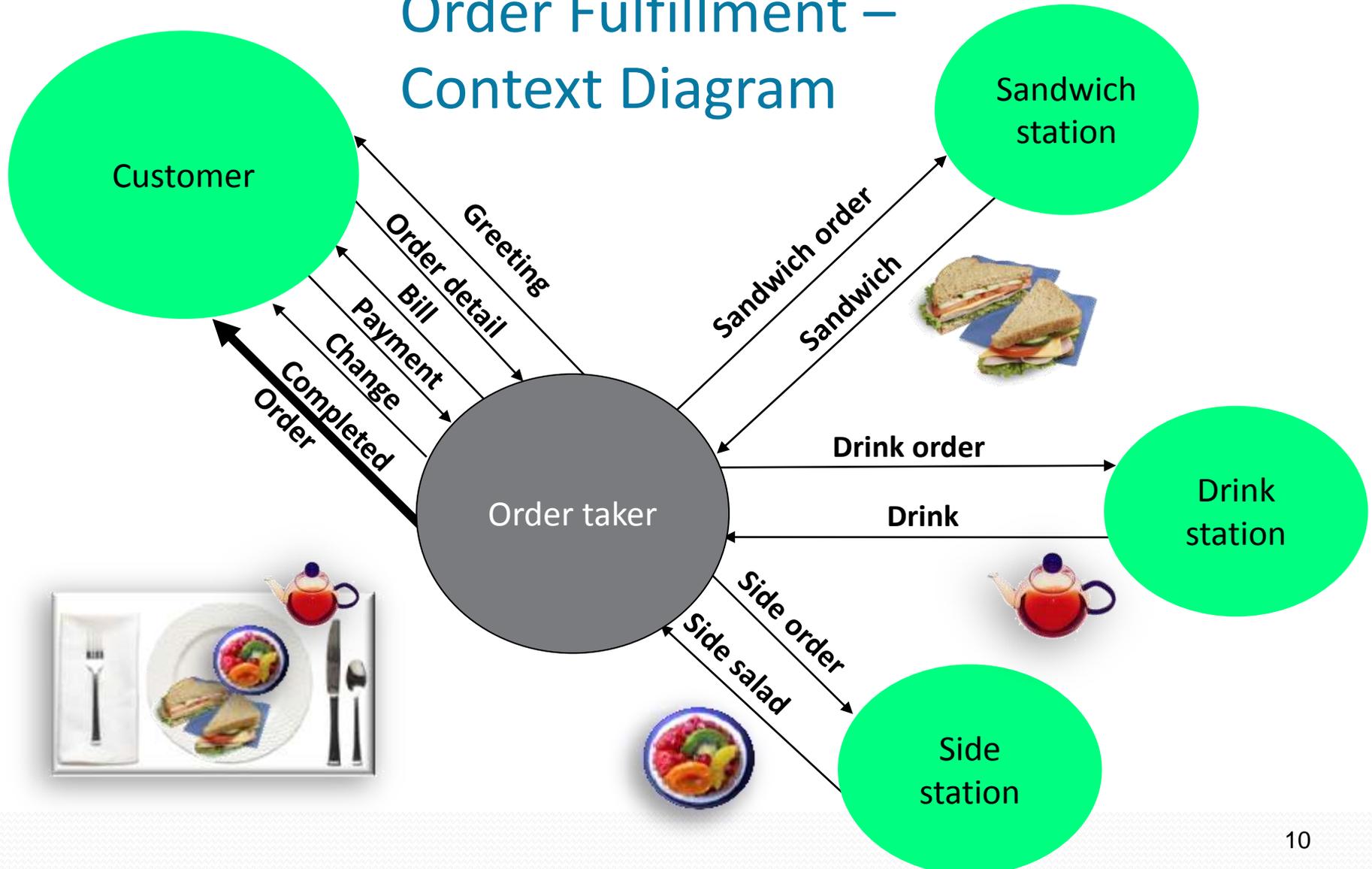
- There are a variety of tools for different aspects of business analysis. Together they provide the information base needed for business process analysis
- Some common tools are:
  - **Context Diagrams**
  - **Task Flow Diagrams**
  - **A Business Process Matrix**
  - **Use Case Diagrams and Studies**



# Sally's Sandwich Shop



# Sally's Sandwich Shop: Order Fulfillment – Context Diagram



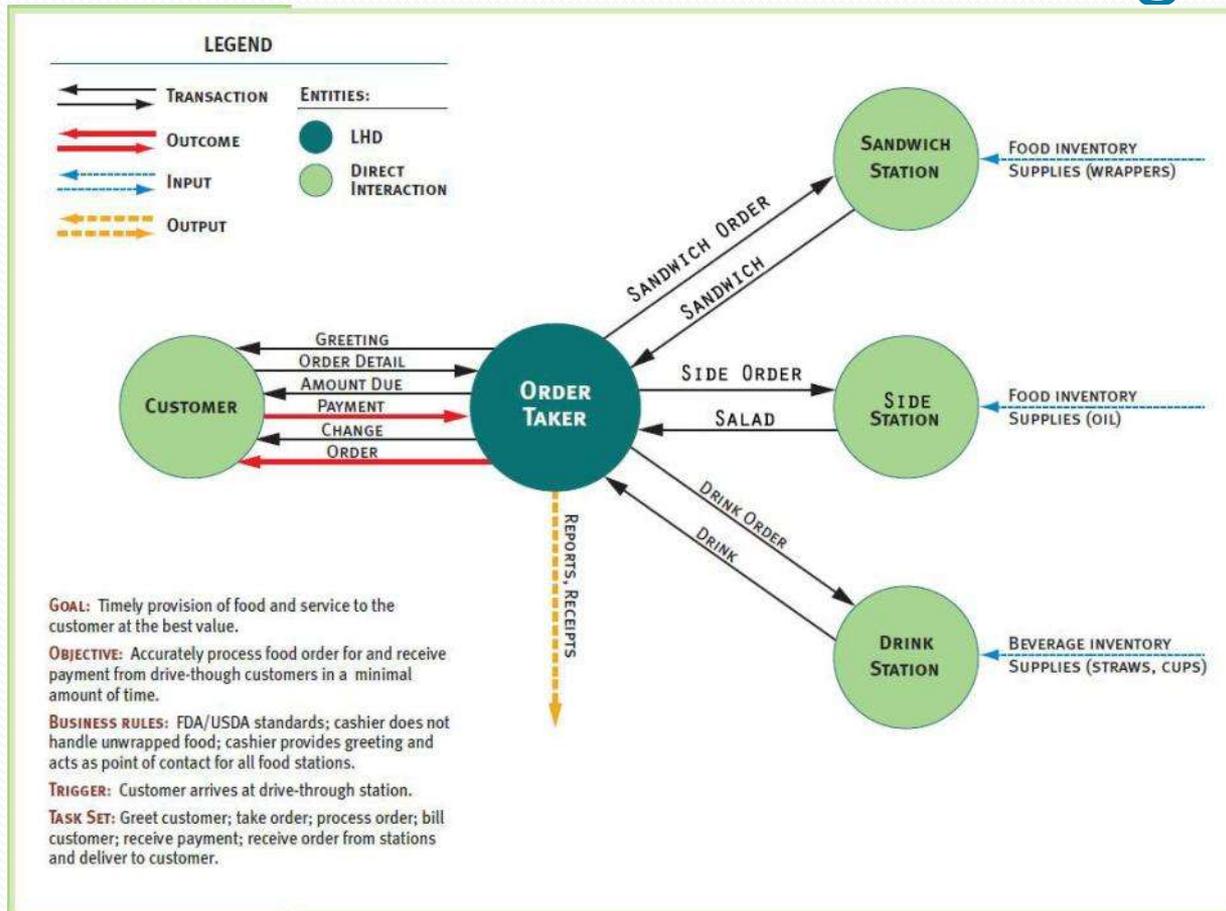
# Context Diagrams

- Context Diagrams:
  - Represents the environment in which tasks occur showing all the **entities** (the **who**) in a business process and the **transactions or exchanges** (the **what**) among them
  - Represents the **outcome** (the **why**) of the process, which indicates the objective has been met
  - Shows necessary **inputs** to and **outputs** from the business process
  - Help scope the process (where does one business process end, where does one begin)

# Context Diagram Symbols

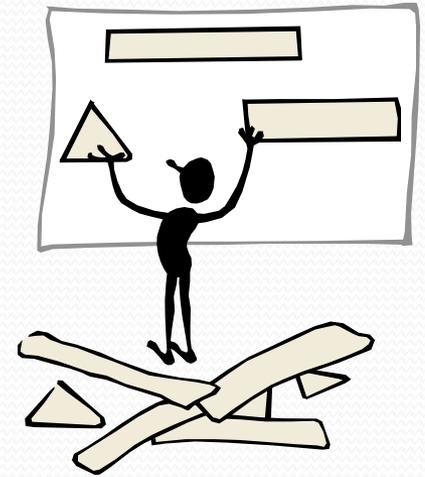
Symbol	Symbol Name	Definition
	Entity	A person, system or group of people who performs one or more tasks involved in a process.
	Transaction	Exchanges between entities. These exchanges may be data, forms, information, goods, or services.
	Outcome	The resulting transaction of a business process that indicates the objective has been met. May become an input or trigger for another process
	Input	Information received by the business process from external sources (not generated within the process).
	Output	Information transferred out from a process.
	Storage	Indicates a place for holding physical transaction materials, either temporarily or permanently.
	Trigger	An event or input that triggers the start of a process.

# Sally's Sandwich Shop: Order Fulfillment – Context Diagram



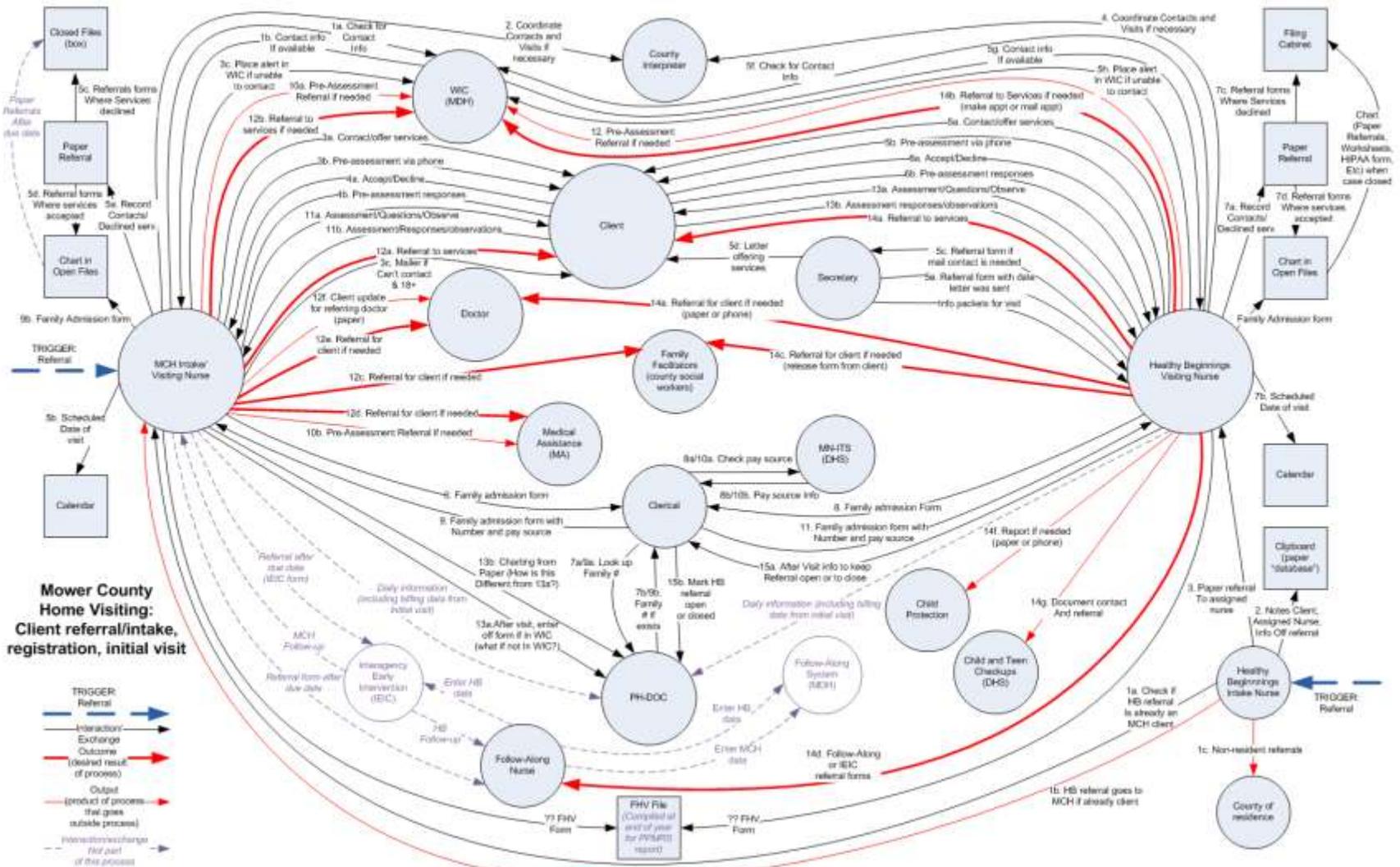
# Building a Targeted Home Visiting Context Diagram

- Visited 9 local public health agencies, both urban and rural
- Interviewed the staff who do the work
- Built a diagram starting with receipt of a referral through the outcome of the initial assessment visit.





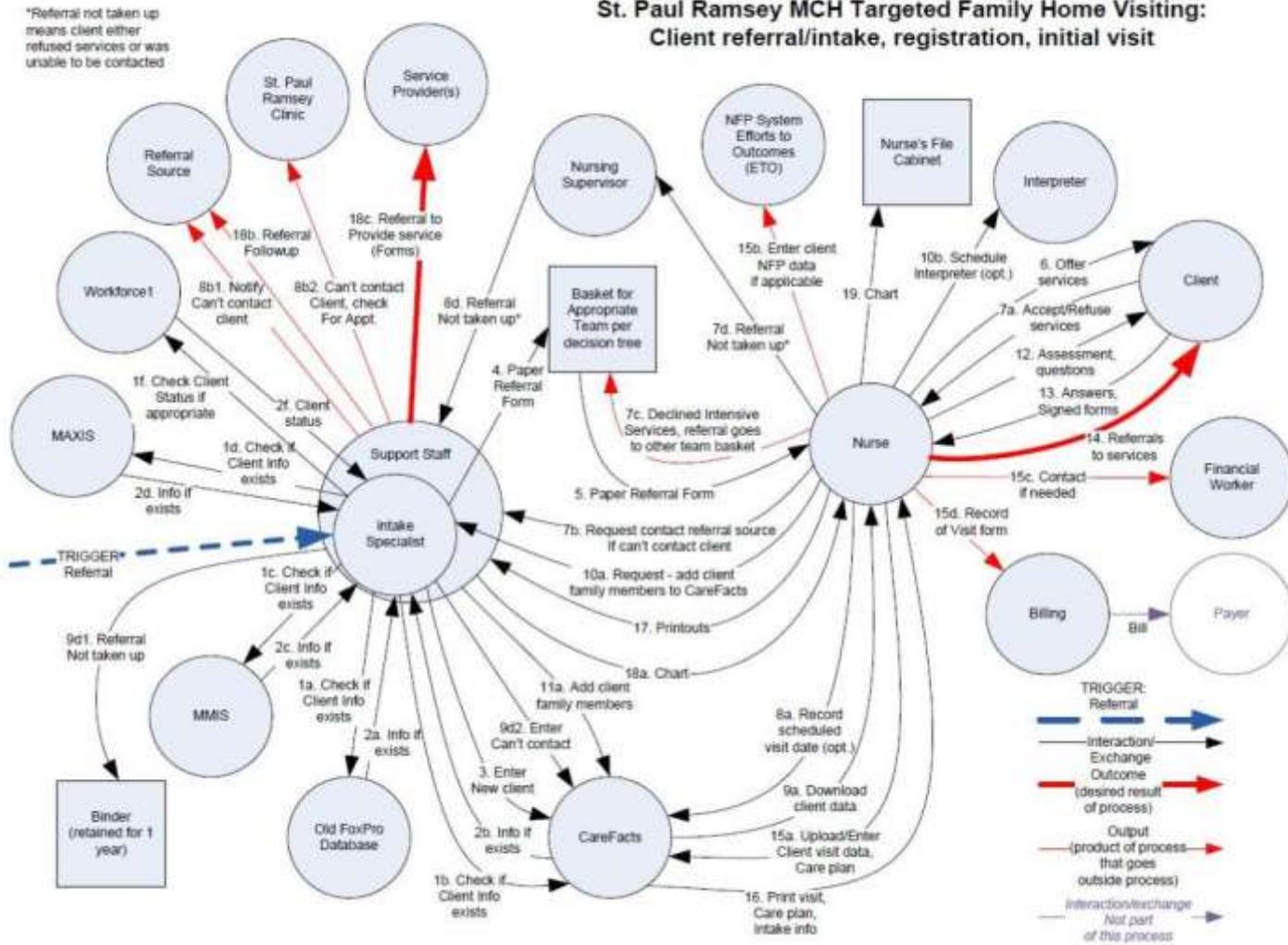




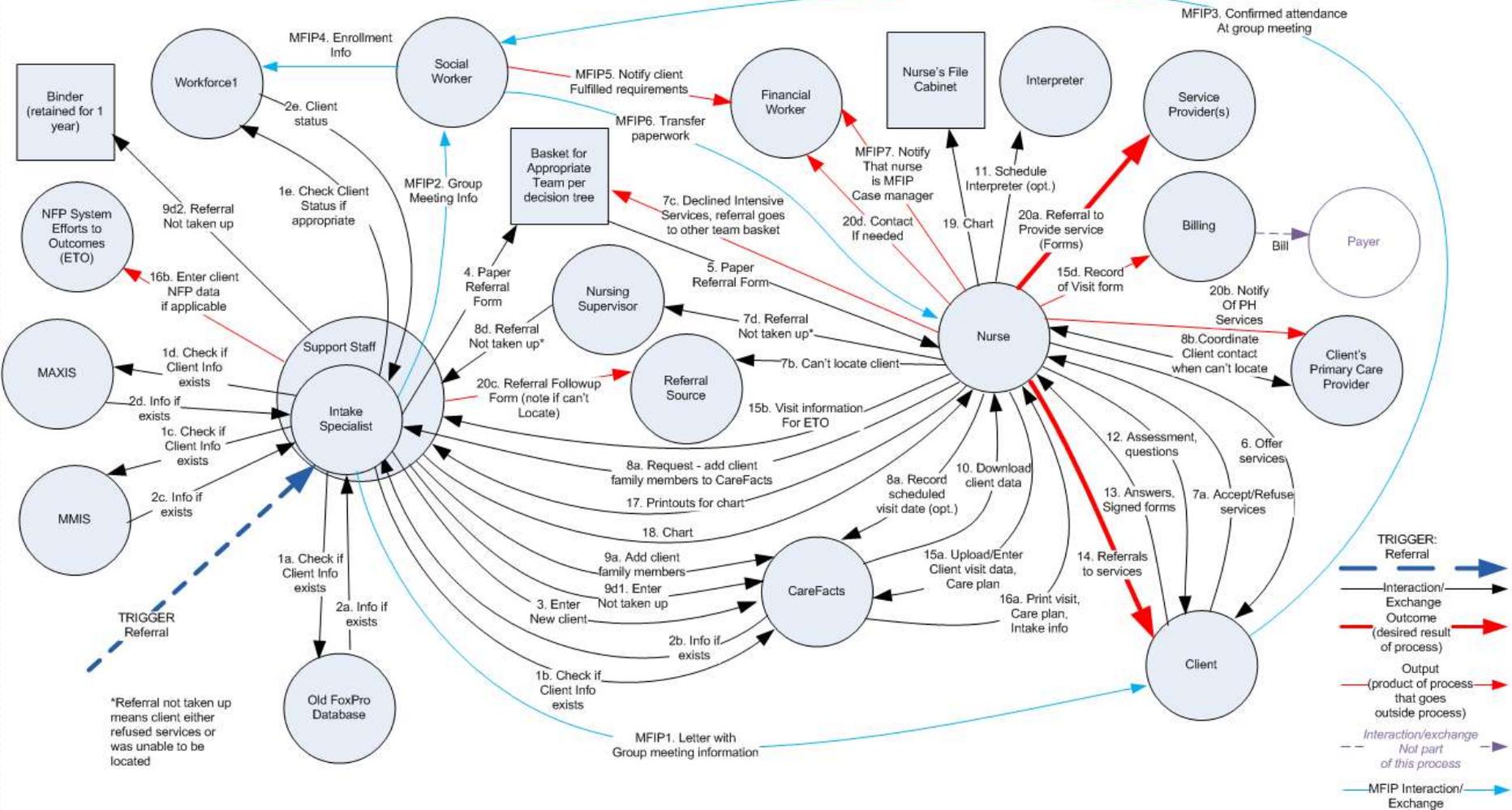


# St. Paul Ramsey Example

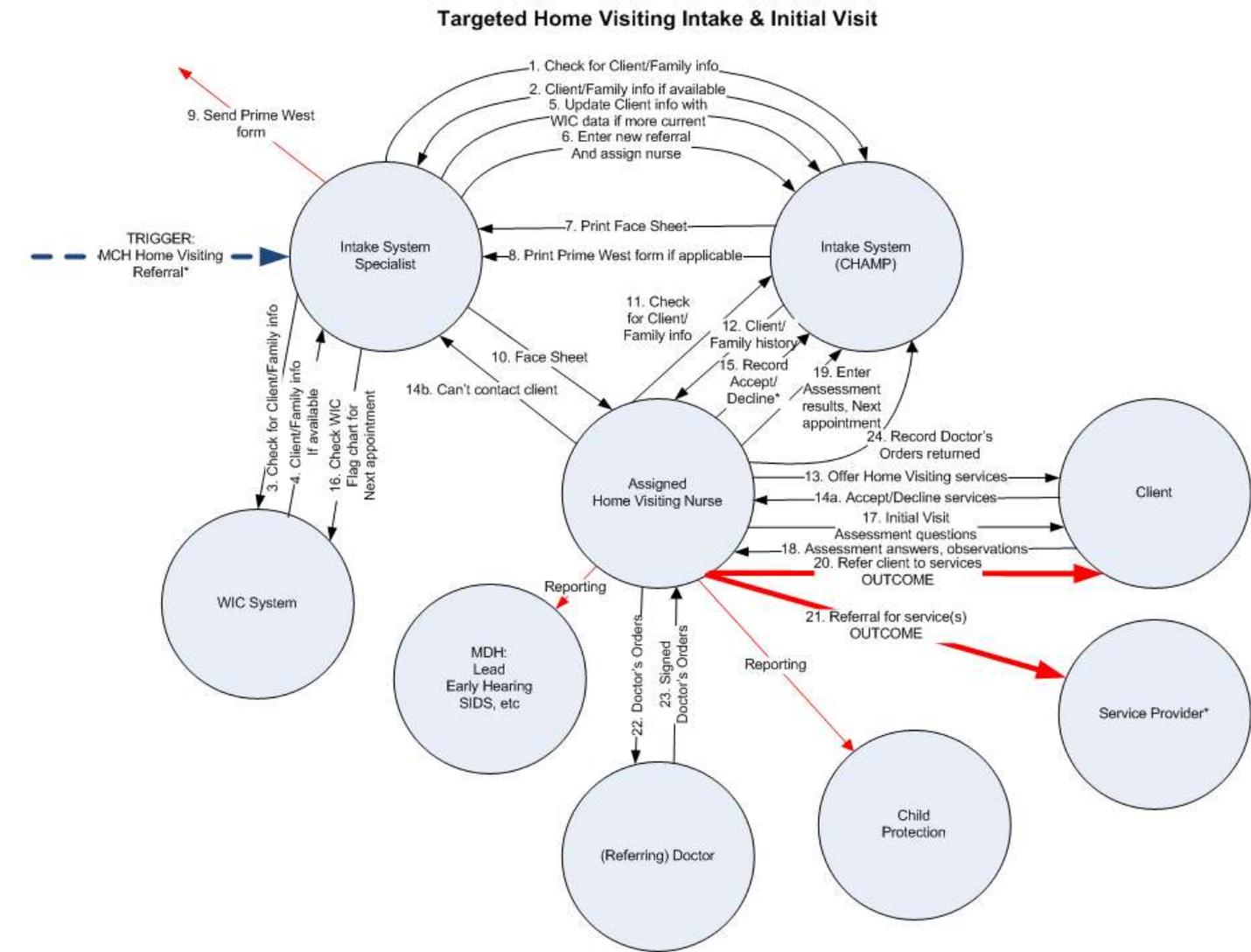
St. Paul Ramsey MCH Targeted Family Home Visiting:  
Client referral/intake, registration, initial visit



## St. Paul Ramsey MCH Targeted Family Home Visiting: Client referral/intake, registration, initial visit



# What does a Context Diagram show us?



# Context Diagrams and Quality Improvement

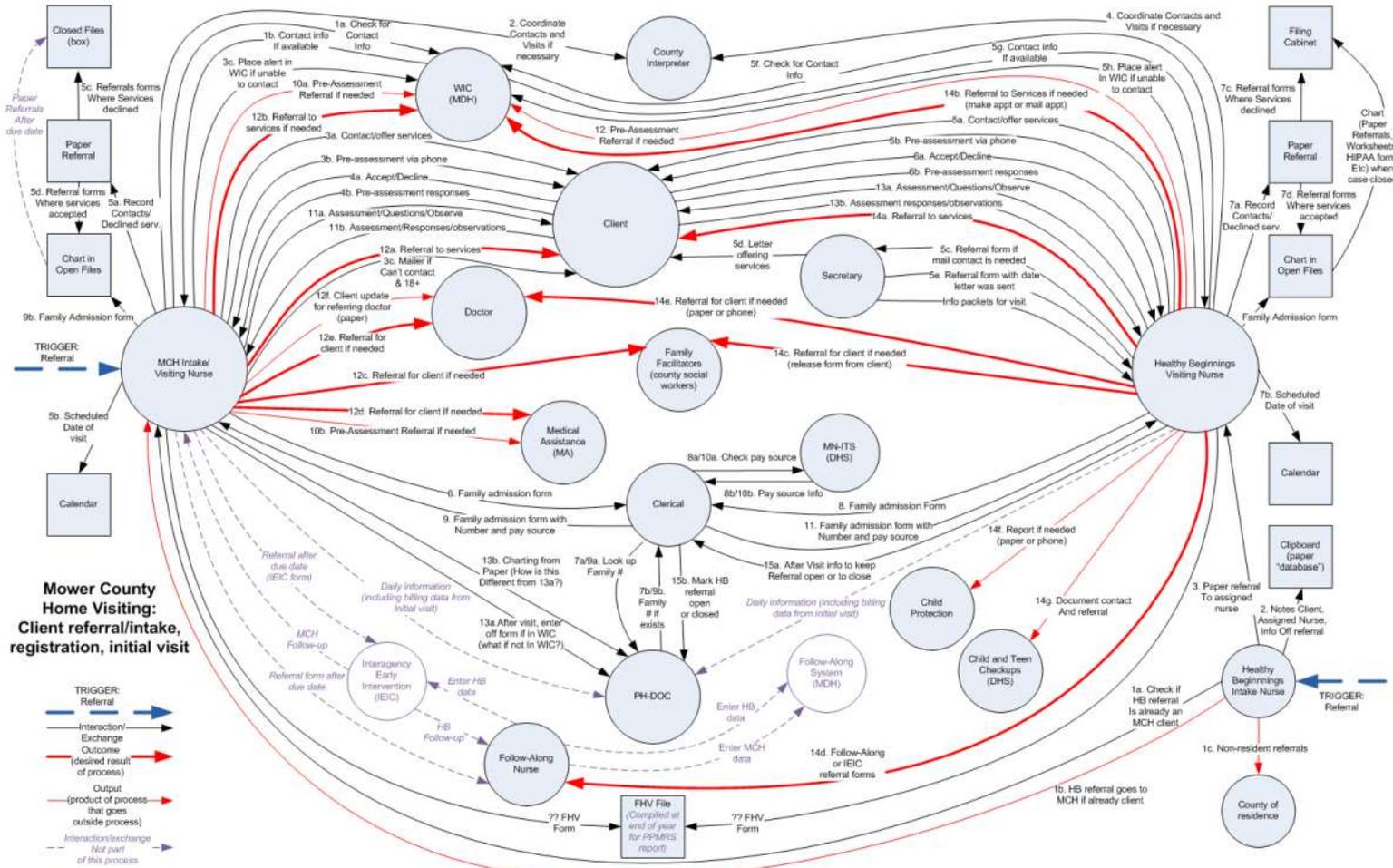
- Need to know where you are in order to figure out where you want to go – and the best way to get there.
- A numbered context diagram can be a starting point for building a workflow diagram.
- What or who may be affected if your process is changed?

# The A-ha! Moments



Local public health agencies recognized that the context diagrams are a valuable tool to learn about their processes for quality improvement efforts.

# Mower County



# Mower County QI

- Helped us visually see our current business process for Family Home Visiting
- Clearly showed how our agency information flowed
- Information exchange = manual or electronic
- Got us to talking, planning and organizing
- Led to a Quality Improvement Project for Family Home Visiting

# Mower County QI

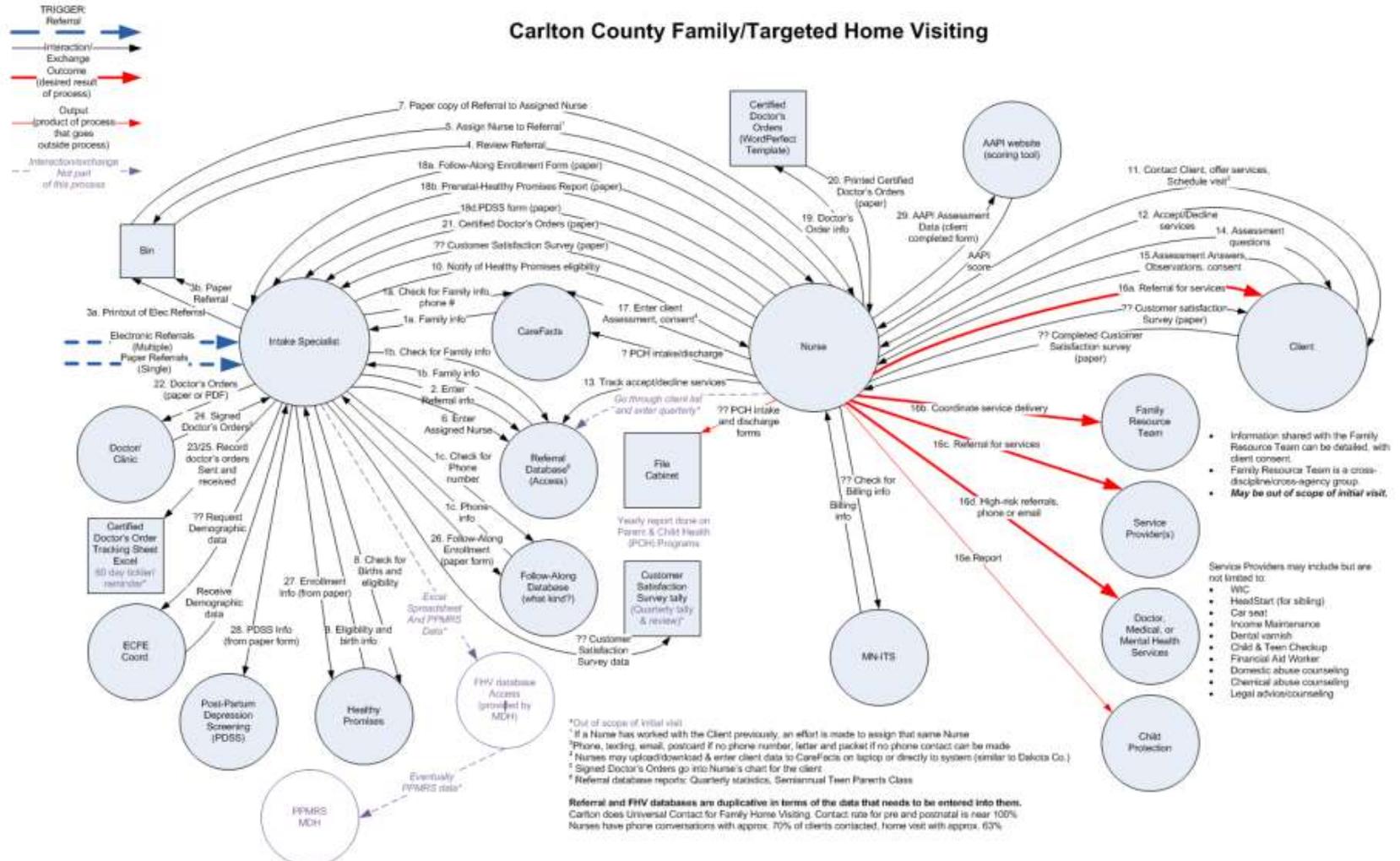


# Is there any Value?

- Use for future analysis of business processes
- Fits with Public Health Accreditation
- Recognize the Value of this concept
- Practice it on any agency process

# Carlton County

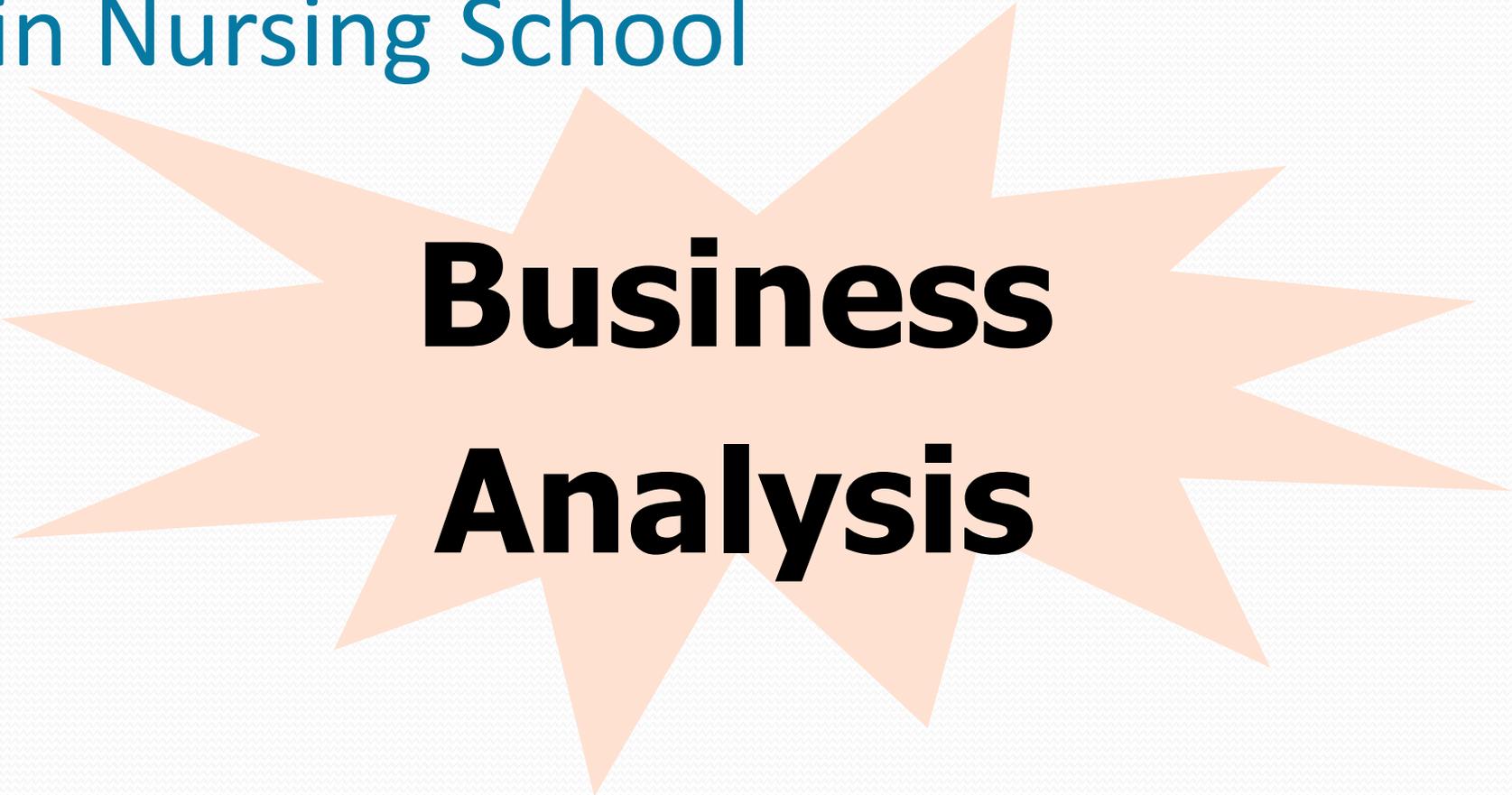
## Carlton County Family/Targeted Home Visiting



# Things I Never Learned in Nursing School

- Accreditation Standards for Public Health
- Billing
- Budgeting
- Data Input
- Electronic Medical Records
- Emergency Preparedness
- Finance Management
- Grant Writing/Reports
- Incident Command System
- Information Technology
- Jail Health Management
- Mass Dispensing Clinics
- Meth Lab Clean-ups
- Quality Improvement in Public Health
- Responding to a Pandemic
- Social Network and HIPAA
- Systems, Policy Development & Environmental Change

# Things I Never Learned in Nursing School



**Business  
Analysis**

# Public Health Accreditation Board Quality Improvement

- Standard 9.1: Use a Performance Management System to Improve Organizational Practice, Processes, Programs and Interventions
- Standard 9.2 Develop and Implement Quality Improvement Processes Integrated Into Organizational Practice, Programs, Processes and Interventions.

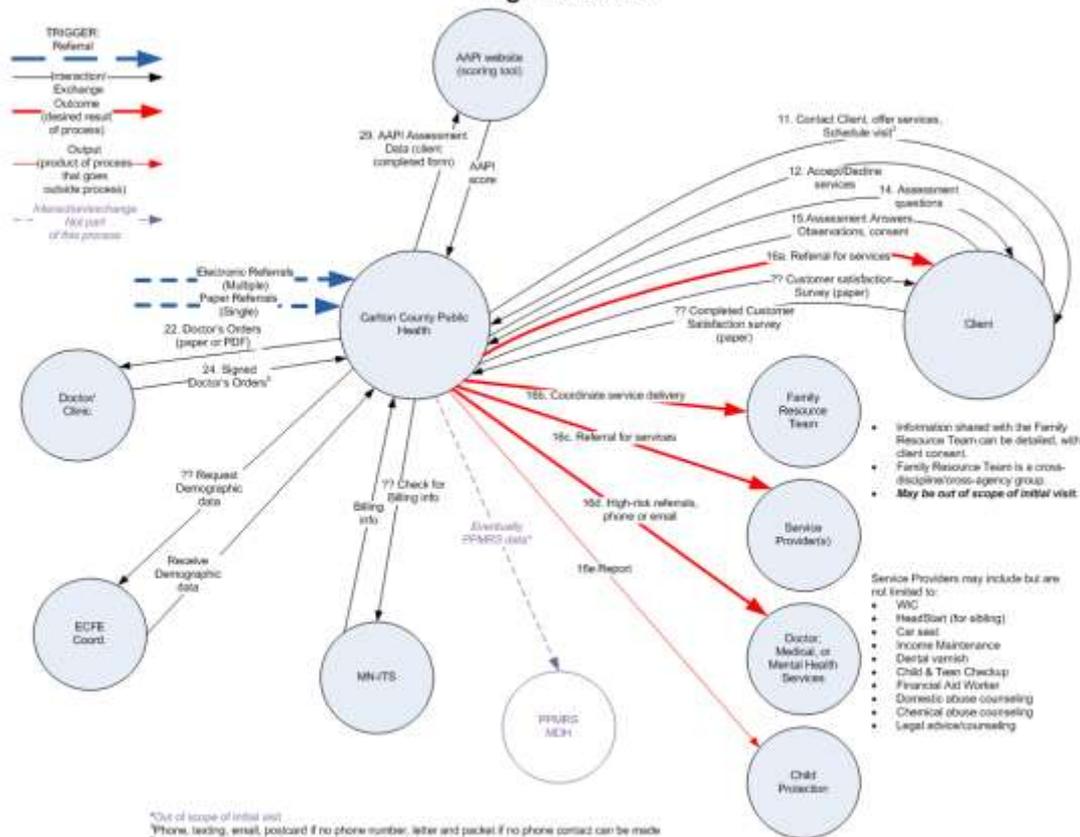
# Commonalities?



How can there  
possibly be any?!?

# Commonalities!

Carlton County Family/Targeted Home Visiting  
High-level view



<sup>1</sup>Out of scope of initial visit

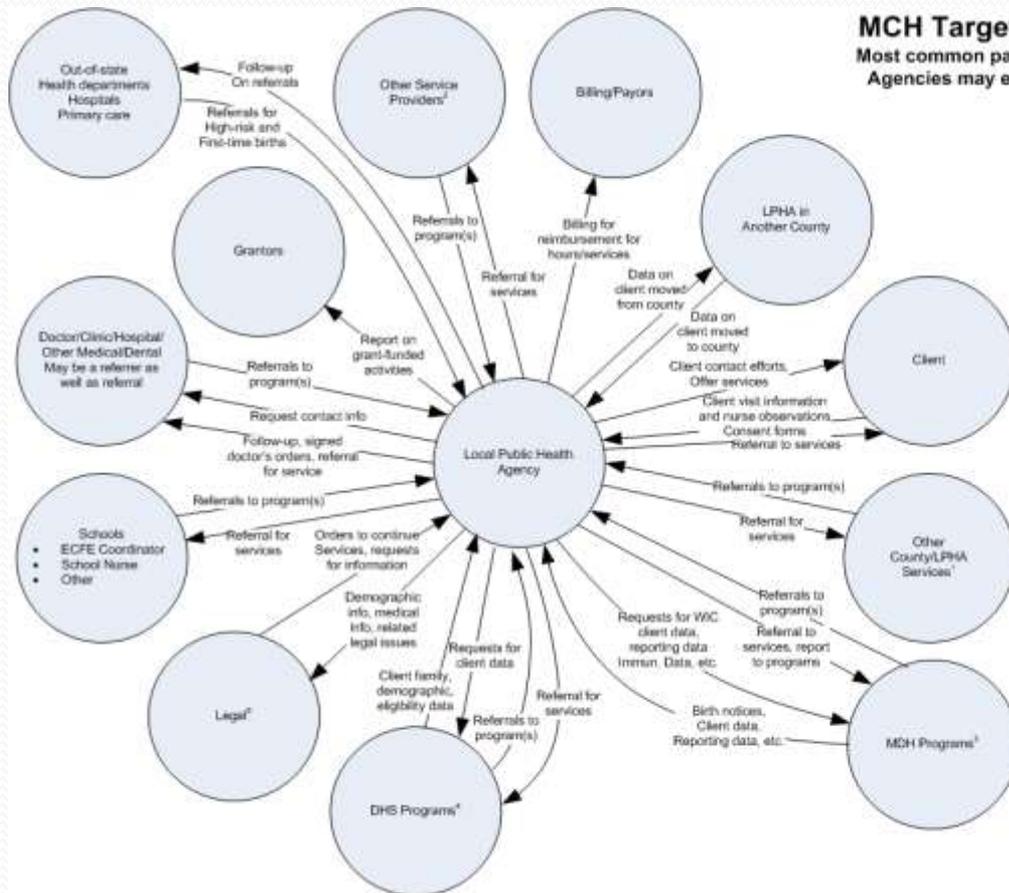
<sup>2</sup>Phone, texting, email, postcard if no phone number, letter and packet if no phone contact can be made

<sup>3</sup> Signed Doctor's Orders go into Nurse's chart for the client

Carlton does Universal Contact for Family Home Visiting. Contact rate for pre and postnatal is near 100%. Nurses have phone conversations with approx. 70% of clients contacted, home visit with approx. 63%.



# Common Exchange Partners for Targeted Home Visiting



## MCH Targeted/Family Home Visiting Most common partners with whom Local Public Health Agencies may exchange information for this service

### 1 Other County/LPH Services

County-delivered/coordinated services **may include but are not limited to:**

- WIC
- Other food/nutrition services
- Lactation/breast feeding program
- Child Protection
- Coordinated family services
- Family Facilitators
- Family Resource Team
- Car seat
- Dental varnish
- Counseling
- Domestic abuse
- Chemical abuse
- Legal advice
- Income Maintenance/Financial Aid
- Housing
- Family Planning
- Mentoring
- Foster Care

### 2 Other Service Provider

Services provided **may include but not be limited to:**

- Interagency Early Intervention Committee (IEIC) (changing to regional)
- HeadStart (for sibling)
- Mental Health services/Depression screening
- Transportation
- Services for handicapped
- Support groups
- Home care/Medical supply company

### 3 MDH Programs

Programs clients may be referred to **may include but not be limited to:**

- Lead
- EHDl
- BDIS
- MHC
- MN Children with Special Health Needs/Follow-Along
- WIC - HuBERT
- PPMRS
- Vital Statistics

### 4 DHS Programs

Programs clients may be referred to **may include but not be limited to:**

- Medical Assistance (MA)
- Child & Teen Checkup
- Cash Assistance
- Food Support
- MMS
- MN-ITS
- SSAS
- MAXIS

### 5 Legal

Legal communications **may include but not be limited to:**

- Law Enforcement
- Courts
- Lawyers
- Community Corrections

# Common Exchange Partners for Targeted Home Visiting

- Client
- Other County/Local Public Health Services
- MDH Programs
- DHS Programs
- Schools
- Local Public Health in another county
- Primary Care Providers/Hospitals
- Other Service Providers
- Out-of-state Primary Care or Health Departments
- Billing/Payers
- Grantors
- Legal

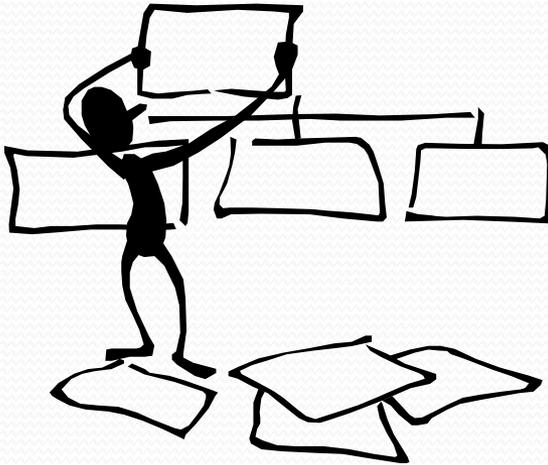
# Why Bother with Business Analysis?

“Public health departments are part of the first line of defense in keeping the public healthy and safe. This duty to safeguard population health is best met by combining public health science with the highly reliable techniques of quality improvement. ***There is growing evidence that Quality Improvement techniques can be applied successfully in public health.***”

Defining Quality Improvement in Public Health

Riley, William J. PhD; Moran, John W. PhD, MBA, CQIA, CQM, CMC; Corso, Liza C. MPA; Beitsch, Leslie M. MD, JD; Bialek, Ronald MPP; Cofsky, Abbey

# Benefits of Business Process Analysis



- Enables you to see problems or possible areas for improvement in your process
- Enables more effective planning, implementation, and operation of systems and changes to systems or processes
- Aids development of requirements for new IT systems

# Take Aways

- Context diagrams and why they are useful to Local Public Health agencies.
- How common public health information/ data exchange partners for Family Home Visiting were identified using context diagrams
- How can you use context diagrams in your agency?

# Questions?

