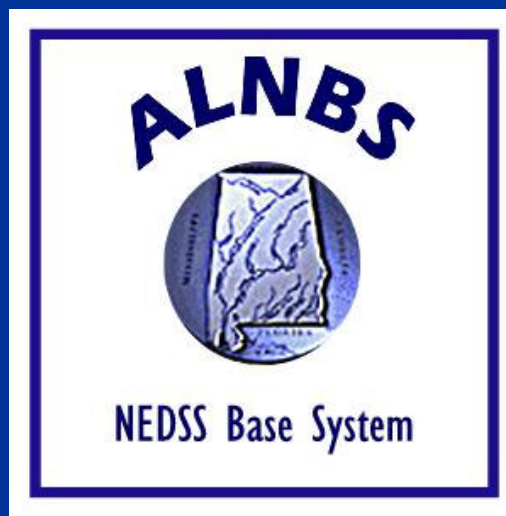




Alabama's Journey with the NEDSS Base System (NBS)



December 3, 2007

CSSE Meeting

Keith Higginbotham, IT Systems Manager



Alabama's NBS (ALNBS)

- Where did we start?
- What has happened along the way?
- Where are we now?
- Where are we going?



- Where did we start?
 - NETSS (?? – Dec 2006)
 - Disease investigation process
 - Paper lab results
 - Paper investigations at the local level
 - Single point of data entry at the state
 - Weekly transmission of MMWR data to CDC
 - Data analysis at the state only





- **What has happened along the way?**
 - August 2005 two hospitals sending Lab data via NBS
 - Jan 2006 Labcorp ELR in “Production”
 - Feb 2006 Second Jurisdiction “Live”
 - Jun 2006 Mayo ELR file in “Production”
 - Oct 2006 Live Statewide with NBS



■ Where are we now?

- NBS version 1.1.6 – “It’s not the same NBS that we started with”
- 125 Active NBS Users
- 6,664 Case Investigations
- 95,088 Lab Results
- Daily data extracts by disease containing all investigation questions (including LDFs) for Epi analysis
- Daily extract of Lead ELR data into Stellar
- Daily extract of HIV ELR data into eHARS
- Quarterly training for new NBS users



What Alabama's Electronic Disease Reporting looks like now using the ALNBS



National Lab

A lab conducts a test and posts a final "positive" reportable disease result for an Alabama resident.



The patient demographics and test result information are electronically routed to the County appropriate jurisdiction (C.D.U.H.) and creates the PHINMS and ALNBS appropriate disease investigation.

Paperless Electronic Data Flow!!!

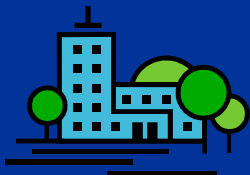


County ALNBS User



If the investigation meets case definition a case notification is created and sent electronically to the State Health Dept for review.

The State EPI Division reviews the investigation and either approves or rejects it.



CDC

Once approved, the case notification is de-identified and sent to the CDC for MMWR reporting.

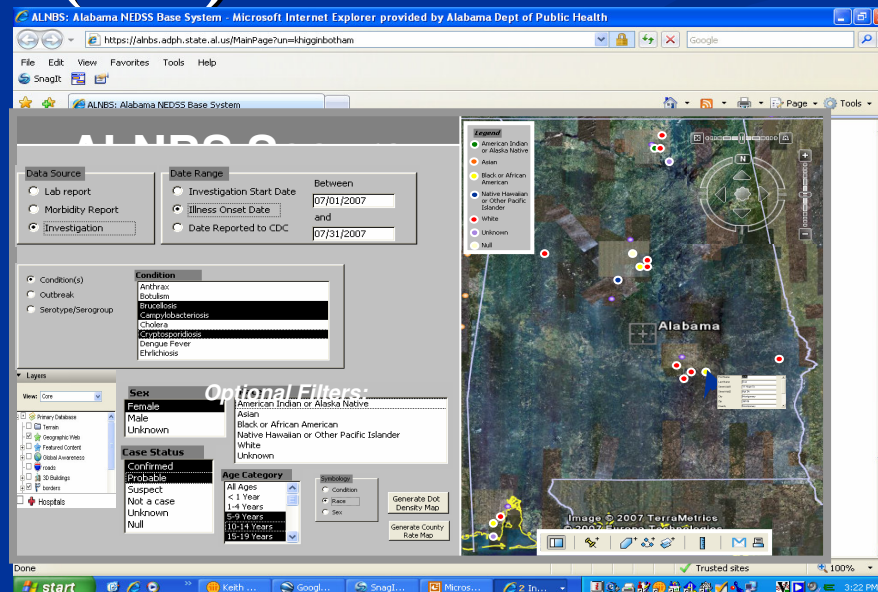


State ALNBS User





- **Where are we going?**
 - Jan 2008 State Lab ELR in “Production”
 - May 2008 Quest ELR in “Production”
 - Oct 2008 ARUP ELR in “Production”
 - Aug 2008 NEDSS/HAN interface for 24/7/365 reportable disease alerting
 - Aug 2008 reportable disease spatial analysis tool (GIS)





Questions / Discussion



Mandated Surveillance Business Rule 1

ALABAMA NOTIFIABLE DISEASES/CONDITIONS

GROUP A DISEASES/CONDITIONS-REPORT TO THE COUNTY (OR STATE) HEALTH DEPARTMENT BY TELEPHONE, FAX, OR IN PERSON WITHIN 24 HOURS OF DIAGNOSIS

Anthrax, human	Severe Acute Respiratory Syndrome (SARS)
Botulism	Trichinosis
Cholera	Tuberculosis
Diphtheria	Typhoid fever
<i>H. influenzae</i> , invasive diseases*	Yellow fever
Hepatitis A	Outbreaks of any kind
Listeriosis	Cases related to nuclear, biological, or chemical terroristic agents
Measles (rubeola)	Cases of potential public health importance***
<i>N. meningitidis</i> , invasive diseases**	
Pertussis	
Poliomyelitis, paralytic	
Rabies, human and animal	

*i.e., meningitis, epiglottitis, sepsis, cellulitis, septic arthritis, osteomyelitis, pericarditis, and type b pneumonia

**Detection of organism from normally sterile site (e.g., blood and cerebrospinal fluid)

***as determined by the reporting healthcare provider





Mandated Surveillance Business Rule 2

GROUP B DISEASES/CONDITIONS-REPORT IN WRITING TO THE COUNTY (OR STATE) HEALTH DEPARTMENT WITHIN 7 DAYS OF DIAGNOSIS

Brucellosis	Leptospirosis
Campylobacteriosis	Lyme disease
Chancroid*	Lymphogranuloma venereum*
Chlamydia trachomatis*	Malaria
Cryptosporidiosis	Mumps
Dengue fever	Psittacosis
E. coli 0157: H7 (including HUS and TTP)	Q fever
Ehrlichiosis	Rocky Mountain spotted fever
Encephalitis, viral	Rubella
Giardiasis	Salmonellosis
Genorrhea*	Shigellosis
Granuloma inguinale*	Syphilis*
Hepatitis B, C and other viral	Tetanus
Histoplasmosis	Toxic shock syndrome
Human Immunodeficiency Virus infection** (including asymptomatic infection, ARC, and AIDS)	Tularemia
Lead, elevated blood levels (≥ 10 mcg/dl)	Vaccinia virus infection or disease other than the expected response to smallpox vaccination
Legionellosis	Varicella
Leprosy	Vibriosis
	Yersiniosis

*Use Sexually Transmitted Diseases report card

**HIV-seropositivity to be reported by laboratories; symptomatic cases to be reported by clinicians to state Division of AIDS Prevention & Control (334) 206-5364 or 1-800-344-1153.

State Health Department Telephone Numbers:

Division of Epidemiology (334)206-5347 or 1-800-338-8EPI (24-hour coverage)

FAX: 334-206-5967

Division of HIV/AIDS Prevention & Control (334)206-5364 or 1-800-344-1153

Division of Sexually Transmitted Diseases (334)206-5350

Division of Tuberculosis Control (334)206-5330

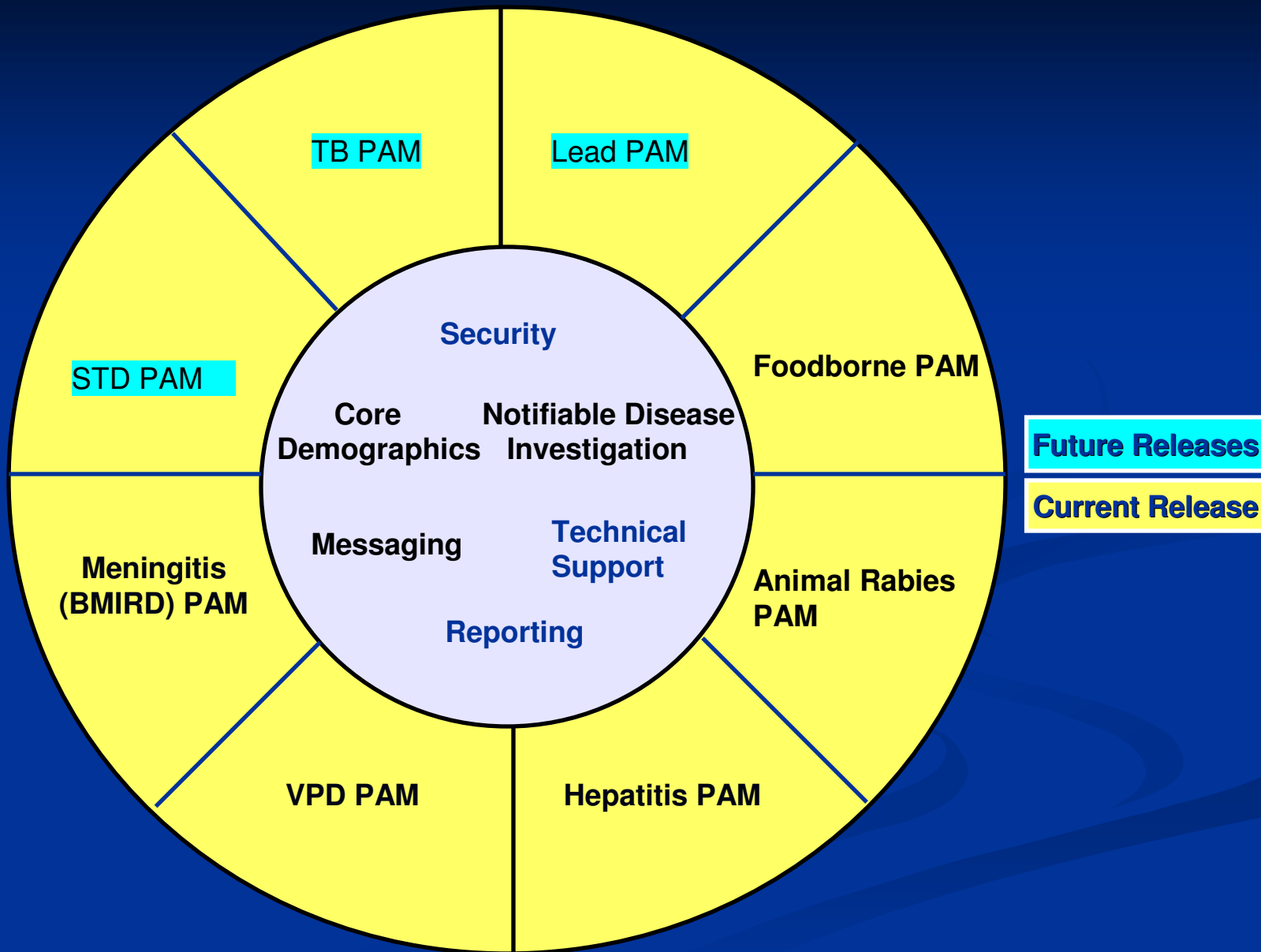
Division of Immunization (334)206-5023

Bureau of Clinical Laboratories (334)260-3400 (24-hour coverage)





NBS Functions





Laboratory Report Forms – The Beginning

State Lab Forms

SYPHILIS SEROLOGY ALABAMA DEPARTMENT OF PUBLIC HEALTH
BUREAU OF CLINICAL LABORATORIES

03/29/2005 01:46AM CST PAGE 3

NAME: [Redacted] DATE: 03/24/2005

RESULTS: VDRL: Non-reactive, TP-PA: Non-reactive

Specimen: Venous Serum, CSF, Urine

Mail Report to: **Autauga County Health Department**
219 North Court Street
Prattville, AL 36067

AFB SMEAR ALABAMA DEPARTMENT OF PUBLIC HEALTH
BUREAU OF CLINICAL LABORATORIES

03/29/2005 01:46AM CST PAGE 3

NAME: [Redacted] DATE: 03/24/2005

RESULTS: Results for Acid-fast bacilli: Found, Not Found

Specimen identified: Sputum, Culture Identification

Mail Report to: **PUBLIC HEALTH AREA 6**
PO BOX 4699
ANNISTON, AL 36204

Mycobacteria Drug Susceptibility Report Bureau of Clinical Laboratories
Alabama Department of Public Health

Name: [Redacted]

Culture Number: 14, Received: 1-4, Indirect test: 1-26-05

Without drug	Mg/ml	Growth
Isoniazid	0.2	BT
Rifampin	1	BT
Streptomycin	2	BT
Ethambutol	5	BT
Fluoroquinolones	5	BT
Capreomycin	5	BT
Clarithromycin	1	BT
Cycloserine	30	BT
Etambutol	5	BT

New State Lab Form

Bureau of Clinical Laboratories-Montgomery
PD BOX 244018, MONTGOMERY ALABAMA 36124-0118
Phone: (334)760-3400 FAX: (334)774-2600

Provider: **UAB HOSPITAL CLINICAL LAB** Accession: 8000584 ID: 31936
519 SOUTH 19TH STREET Birmingham, Alabama, 3623300
(205) 834-4444

Test Name: **Enteric Bacteriology Results**
Salmonella - Etiologic Identification
Source: Urine

Culture Results: **GROWTH**
Organisms: **Salmonella species, Group B monophasic (H)**

Mayo

03/29/2005 01:46AM CST PAGE 3

NAME: [Redacted] DATE: 03/24/2005

RESULTS: HEP C: Negative

Specimen: Serum, CSF, Urine

Mail Report to: **Shelby**

LabCorp

03/29/2005 01:46AM CST PAGE 3

NAME: [Redacted] DATE: 03/24/2005

RESULTS: HEP C: Negative

Specimen: Serum, CSF, Urine

Mail Report to: **NR**

ARUP

ARUP Laboratory Report

03/29/2005 01:46AM CST PAGE 3

NAME: [Redacted] DATE: 03/24/2005

RESULTS: [Redacted]

Specimen: Serum, CSF, Urine

Mail Report to: **ARUP**

Other Hospital Private

ALABAMA DEPARTMENT OF PUBLIC HEALTH
SEXUALLY TRANSMITTED DISEASE DIVISION
MONTGOMERY, ALABAMA 36130

NAME: [Redacted] DATE: 03/24/2005

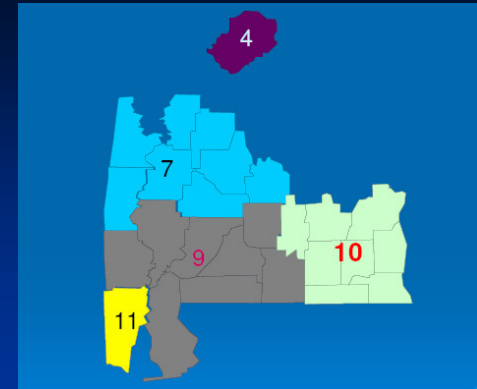
RESULTS: [Redacted]

Specimen: Serum, CSF, Urine

Mail Report to: **Other Hospital Private**



ALNBS



■ Where are we now?

- “Live” reporting from Areas 4, 7, 9, 10 and 11
- “Live” lab reports from Springhill Hospital and USAMC to ALNBS
- “Live” Labcorp ELR into “Production” ALNBS
- “Live” Mayo ELR into “Test” ALNBS

■ Where are we going?

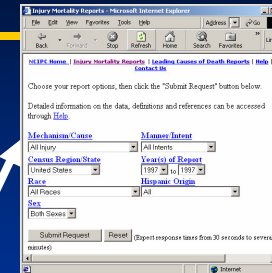
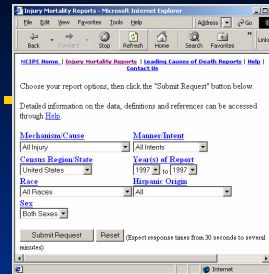
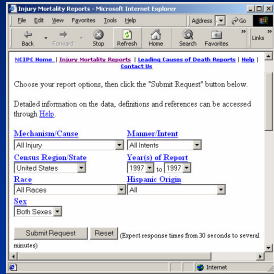
- “Live” Mayo ELR into “Production” ALNBS – Jul ‘06
- “Live” State Lab and Quest ELR into “Test” ALNBS – ?
- Area 5 “Live” – Jul ‘06
- Area 2 “Live” – Aug ‘06
- Area 1 “Live” – Aug ‘06
- Statewide “Live” – Sept ‘06





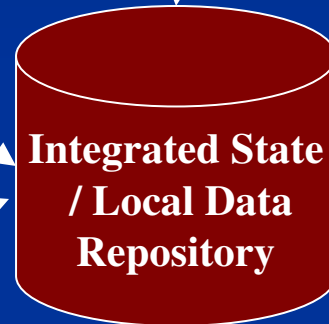
State Health
Department

ICP & Lab Tech
(Hospital)

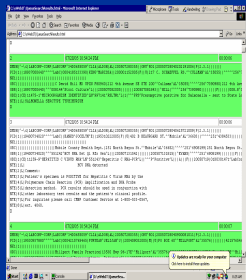


County Health
Department

Security



Private Labs &
Hospital Labs
(ELR HL7)



Where does the data come from?



Manual Lab Report/Investigation Data Entry Screens

NEDSS - Microsoft Internet Explorer provided by Alabama Dept of Public Health

File Edit View Favorites Tools Help

Address http://ph2srv52:7001/jbs/MyTaskList1.do?ContextAction=AddLabDataEntry

Patient Report Information

Search Clear

Patient

* Indicates a required field

* As of Date: 08/09/2005
mm/dd/yyyy

The name entered here will be stored as a legal name and the address entered will be stored as a home address.

Last: Suffix:

First:

Middle:

Address:

City: State: Alabama

Zip: County:

Phone:

Date of Birth: Age:

Date Of Death:

Sex:

SSN:

Ethnicity:

Unknown American Indian or Alaska Native

NEDSS - Microsoft Internet Explorer provided by Alabama Dept of Public Health

File Edit View Favorites Tools Help

Address http://ph2srv52:7001/jbs/MyTaskList1.do?ContextAction=AddLabDataEntry#

Patient Report Information

Order Information | Test Result(s) | Administrative | Custom Fields | Isolate Tracking

Order Information [Back to Top](#)

* Indicates a required field

Facility and Provider Information

Search Clear Code Lookup

* Reporting Facility: There is no Reporting Facility selected.

Search Clear Code Lookup

Ordering Facility: There is no Ordering Facility selected.

Same as Reporting Facility

Search Clear Code Lookup

Ordering Provider: There is no Ordering Provider selected.

* Program Area: Unknown

* Jurisdiction: Unknown

Share record with Guests for this Program Area and Jurisdiction

Lab Report Date:
mm/dd/yyyy

* Date Received by Public Health: 08/09/2005
mm/dd/yyyy

Ordered Test: Search Clear

NEDSS - Microsoft Internet Explorer provided by Alabama Dept of Public Health

File Edit View Favorites Tools Help

Address http://ph2srv52:7001/jbs/MyTaskList1.do?ContextAction=AddLabDataEntry#

Ordered Test: Search Clear

Accession Number:

Specimen Source:

Specimen Site:

Date Specimen Collected:
mm/dd/yyyy

Test Result(s) [Back to Top](#)

Resulted Test Result(s) Search Clear

* Resulted Test:

Coded Result:

Numeric Result:

Text Result:

Reference Range: to:

Result Status:

Result Comments:

[Add Test Result](#)

Administrative [Back to Top](#)



NBS Functionality: Reporting

*Gender Distribution for Hepatitis C Acute & Hepatitis C virus infection
by Race*

	GENDER			TOTAL	GENDER		
	F	M	U		F	M	U
	#	#	#	#	%	%	%
RACE							
African American	3	5	.	8	0.12	0.20	.
American Indian	1	3	.	4	0.04	0.12	.
American Indian or Alaska Native	2	2	.	4	0.08	0.08	.
Asian	1	.	.	1	0.04	.	.
Asian Indian	.	1	.	1	.	0.04	.
Black or African American	1	3	.	4	0.04	0.12	.
European	7	15	.	22	0.28	0.59	.
Unknown	844	1605	13	2462	33.37	63.46	0.51
Vietnamese	.	1	.	1	.	0.04	.
White	10	12	.	22	0.40	0.47	.
TOTAL	869	1647	13	2529	34.36	65.12	0.51



NBS Security Overview

The data and functions a user can access are defined in 4 dimensions.

An audit trail of user actions is in the database.

What program areas is the user allowed

General
Communicable
Immunization
STD

For what geographic areas can the user access data?

PH Area
County

ALNBS
Security

Person
Investigation
Morbidity Report

View
Edit
Delete

What forms can the user work with?

What can the user do?



Talking Points

- Estimated monthly volume for Morbidity Reporting?
- Types of tests performed at your facility?
- What is your current reporting Process?
 - Who?
 - What?
 - When?
 - How?
- Would Manual Lab Reporting via NBS be feasible?



Manual Lab Reporting

- Who would data enter the Lab results?
 - Do they have internet access?
 - IE 6.0 SP1 or higher?
- Next Steps
 - Test
 - Add test results
 - Train
 - 1/2 Day of on-site training
 - Production
 - Monitor/Troubleshoot problems as they arise



ELR Interface

- Do you have a Laboratory Information System?
- Do you currently exchange electronic lab results?
 - What format?
 - How does it transmit the message?
- Does LIS support HL7 Interfaces?
- What version of HL7?
- Vocabulary (LOINC/SNOMED)?
- Public Health Information Network Messaging System (PHINMS)?



ELR Interface

- Next Steps?
 - Planning/Design Meeting
 - Message Format
 - Message Transport
 - Development
 - Create sample messages (USAMC)
 - Implement secure message transport (USAMC/ADPH)
 - Create message parsing app (ADPH)
 - Test
 - Ensure message can be parsed and populated into the NBS
 - Secure message transport
 - Production
 - Monitor production system
 - Troubleshoot problems as they arise