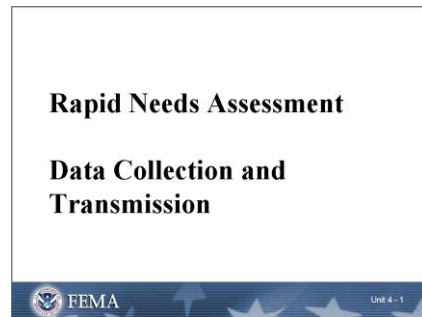
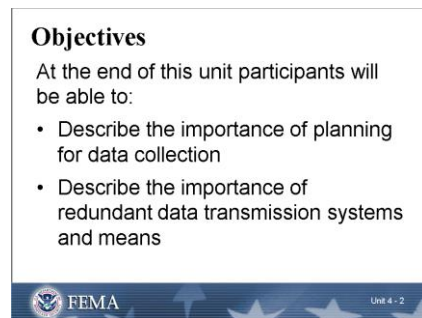


UNIT 4: DATA COLLECTION AND TRANSMISSION

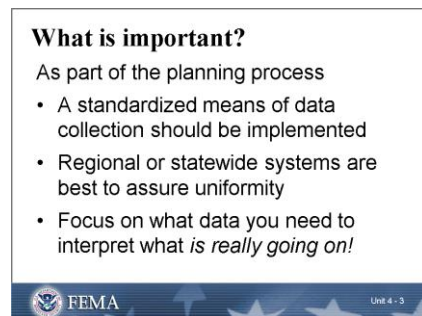
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Visual 1



Visual 2



Visual 3

UNIT 4: DATA COLLECTION AND TRANSMISSION

OBJECTIVES

At the end of this unit participants will be able to:

- Describe the importance of planning for data collection.
- Describe the importance of redundant data transmission systems and means.

WHAT IS IMPORTANT?


Data collection must focus on those elements that are the most important. In order to assure that the proper data is collected so that an accurate analysis of the current situation can be made, data collection should be a formalized process and procedure. It is important that a standardized means of data collection be a part of the planning and implementation system.

The best way of dealing with data collection is use a system that is uniform throughout a state or region. This allows for easy sharing of resources in an emergency. Remember, you must focus on data that is going to allow for analysis and interpretation to determine what is needed to support life supporting and life sustaining operations.

Data

Data is simple information

- It provides a base, but not a means
- It is just facts and figures until the data is analyzed




Visual 4

Data Analysis

Analysis provides useful intelligence

- It turns facts and figures into useful information
- To be effective, analysis requires the collection of the proper data




Visual 5

Data Details

The more detailed or specific the data

- The more useful it becomes
- The more focused the analysis

Better intelligence is produced
 But *all data is useful depending on how it is used*



Visual 6

DATA

It is important to understand the difference between data and intelligence which is produced from data by analysis to provide useful information. Data is raw facts and figures. While it is essential to have good data, this information has value added when it is analyzed. Analysis turns raw data into useful information that can be used by decision-makers.

DATA ANALYSIS

Generally speaking, the more specific the data the more useful it becomes. But all data with proper analysis can be valuable.

DATA DETAILS

The more detailed or specific the data


- The more useful it becomes
- The more focused the analysis

Better intelligence is produced

But all data is useful depending on how it is used

Example

1. Debris is widespread
2. Debris is blocking roads
3. Debris is blocking main roads on the SW side of the city and making travel difficult
4. Debris is blocking access to the hospital and preventing ingress of emergency traffic




Visual 7

Identifying Data Needs

Look at cause and effect relationships

- Power is out therefore MRI scans cannot be made
- If MRI scans cannot be made, medical diagnosis is compromised
- If medical diagnosis is compromised, patient care becomes more difficult

Therefore, power failures complicate patient care and efforts should be made to restore power



Visual 8

EXAMPLE

Debris is widespread – a wide area has impacted by the event.

Debris is blocking roads – An unknown number of roads have debris blockage, but it is unknown if the debris blockage is complete or what roads are being impacted.

Debris is blocking main roads in the SW side of the city – This is limiting the geographic area and is now providing information on the type of roads that are being impacted and to what extent.

Debris is blocking access to the hospital and preventing ingress of emergency traffic. This is highly specific data that has obvious implications.

IDENTIFYING DATA NEEDS

One way to determine data needs is to perform a reverse analysis. That is, look at the impacts and problem areas that compromise life supporting and sustaining activities and determine what data is required to come to those conclusions. This should involve looking at cause and effect relationships. These are some examples of cause and effect relationships.

Look at cause and effect relationships

- Power is out therefore MRI scans cannot be made
- If MRI scans cannot be made, medical diagnosis is compromised
- If medical diagnosis is compromised, patient care becomes more difficult

Therefore, power failures complicate patient care and efforts should be made to restore power

Formatting Data

- Data should be formatted to ease and speed collection
- Communications *must be* taken into account
- Data collection should support multiple communication platforms
- Data collection should require minimal expertise on the part of field staff



Unit 4 - 9

Visual 9

Transmission

Think about use of multiple systems

- Plan for system congestion
- Remember stress factor
- Think about minimal training prior to use
- Make everything as simple as possible!



Unit 4 - 10

Visual 10

Methods

Voice

- Most common method
- Radio, cell phone, landline

Issues

- Data loss in translation
- Time consuming
- May tie up communications channels



Unit 4 - 11

Visual 11

FORMATTING DATA

The collection of data cannot be left to chance. Forms must be created to ensure the proper collection of data. When formats are made for data collection consideration must be given to how that data will be collected. Data collection systems should support multiple data collection systems and should be as foolproof as possible.

TRANSMISSION

When thinking about communication and data transmission, you should consider the following items. First, plan for massive system congestion. Real life incidents jam communications systems far in excess of what can be simulated in exercise events. Remember that in a real life event you will be expecting people to function under high stress conditions. This means that complex systems that are only used during emergency conditions are likely to be less effective than simple easy to use systems and methods. Plan that the system may be implemented months after training programs were conducted. Simple directions and easy to use systems are a must. Remember, keeping it simple helps assure success.

METHODS

Voice is the most common method of communication. This can use radios, cell phones, or even landlines. However voice communications are not perfect. There can be translation issues between the person transmitting the data and the person receiving. Voice communications can be time consuming, particularly if long narratives are involved. And finally, voice communications may tie up communications channels and interfere with more important messaging.


Methods

Fax

- Available at larger fixed sites
- Usually dependent on landlines

Issues

- Requires fixed equipment
- Subject to connection issues
- Not readily available from mobile operations



Visual 12


Methods

E-mail

- Message will usually get through, eventually
- Information translation excellent

Issues

- Requires internet connectivity
- Requires electronic equipment
- Requires monitoring on receiving end



Visual 13


Methods

Data Compression

- Very effective if available
- Much more reliable than e-mail

Issues

- Requires equipment
- Certain level of receiver training required
- Software dependent




Visual 14

Training and Use

System must be

- Self evident
- Provide reference instructions
- Be easy to handle
- Require minimal training



Visual 15

Fax is another communications system. Forms and data can be effectively communicated by fax, but usually fax machines are only available at larger fixed sites and fax machines are usually dependent on the use of landline telephones. Fax machines are subject to user errors (is it transmitted face up or face down?) and is subject to connection issues when circuits are crowded. Finally fax machines are generally not available from mobile locations.

E-mail can be effective communications tool in an emergency. Computer systems will keep “pinging” networks to get the message through even under highly congested conditions, but the time factor for receipt of the message may be highly variable. Since e-mail uses written communications, information translation is excellent. However e-mail requires internet connectivity which may be an issue. It also requires computers and other forms of electronic equipment that may be battery dependent. Finally e-mail traffic requires that the receiver monitor message traffic.


Data compression methods are usually highly reliable and portable. Unlike systems like e-mail that transmit the form and data together, compression systems only transmit the recorded data thus reducing the total transmission package to a fraction. Compression systems usually require a higher level of skill to either set up the system or at times to use it. These systems are also software dependent and unless all users have the appropriate software, translation issues are likely.

TRAINING AND USE

Whatever system is developed and used, these are some things to remember. First, the system that is developed must be user friendly and as self-evident and explanatory as possible. Reference materials on the use of the system should always be provided. If these concepts are followed, the system should be easy to handle and require minimal training.

Example Form

- Easy to use layout
- Identified lines and boxes for easy transmission.
- Formats available:
 - Paper
 - Electronic
 - Fax
 - Text Only
- Data entry self explanatory



FEMA Unit 4 - 16

Visual 16

EXAMPLE FORM

This is an example of a data collection.

Note that the system is laid out so that each data entry can be easily identified and transmitted. For example, the voice data transmission on the bed capacity of the facility would be read as 7-B for a facility with 300 beds. This allows for easy, quick and error free transmission and recording of data.

The data can be obtained and transmitted by a variety of means. It can be collected in paper format, submitted through electronic means via email, faxed to a facility for completion or transmitted by fax to the EOC or other site for analysis, or transmitted in a data compressed format.

The data entry is self-explanatory and instructions are provided at the end of the document. Finally the form may be printed on 11x17 paper to create a single document that easy to handle and avoids lost pages.

Review

At the end of this unit participants will be able to:

- Describe the importance of planning for data collection
- Describe the importance of redundant data transmission systems and means

FEMA Unit 4 - 17

Visual 17

REVIEW

At the end of this unit participants will be able to:

- Describe the imporatance of planning for data collection.
- Describe the importance of redundant data transmission systems and means.

And now...

Take a break!

FEMA Unit 4 - 18

Visual 18

UNIT SUMMARY

Take a 10 minute break.