



Enhancing passive surveillance in the UK

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AHVLA

Overview

Background

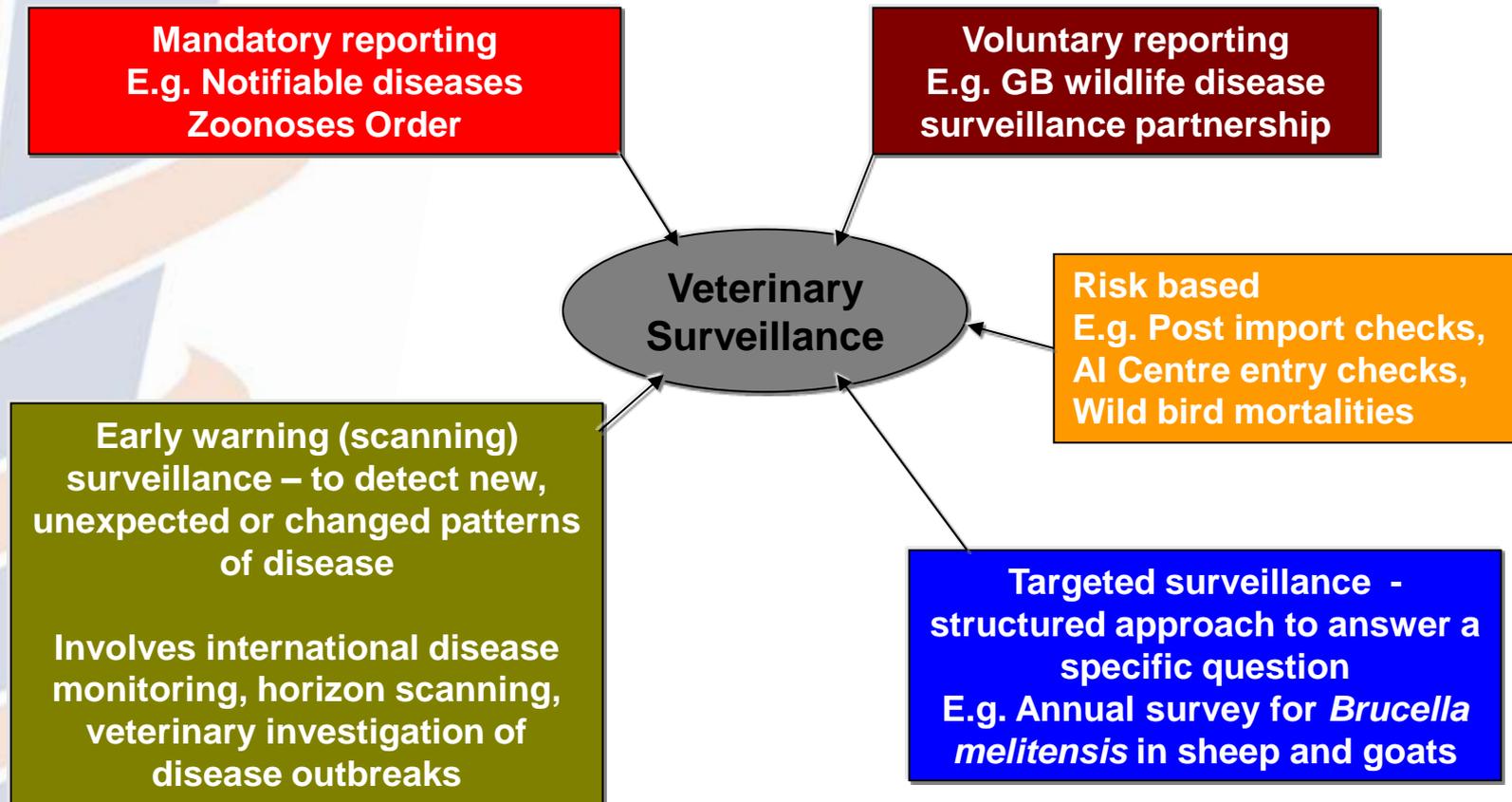
- Past surveillance system
- Drivers for change

New surveillance model

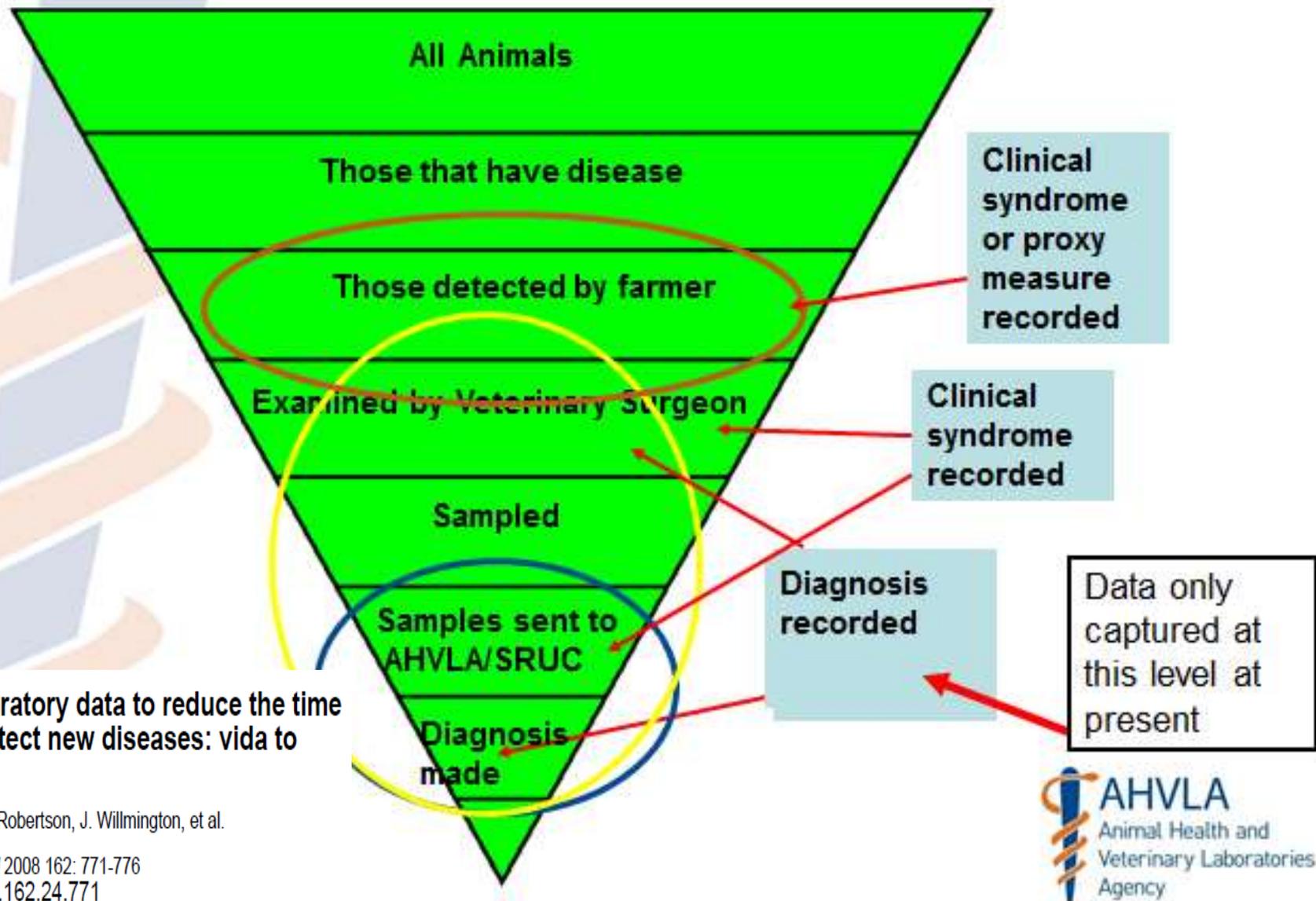
- Progress
- Challenges

Future developments

Surveillance in the UK



Scanning Surveillance – the pyramid of surveillance



Use of laboratory data to reduce the time
taken to detect new diseases: video to
download

Gibbens, S. Robertson, J. Willmington, et al.

Veterinary Record 2008 162: 771-776
10.1136/vr.162.24.771

Opportunities to improve scanning surveillance

Identified through a number of reports

- To improve coverage and representativeness of the surveillance system
- To widen the surveillance network to include private practitioners and other PME providers
- To increase intelligence exchange between Government, vets and the livestock industry, with surveillance being seen as a shared responsibility.
- To enable the development and maintenance of expertise of all those working within the surveillance system.

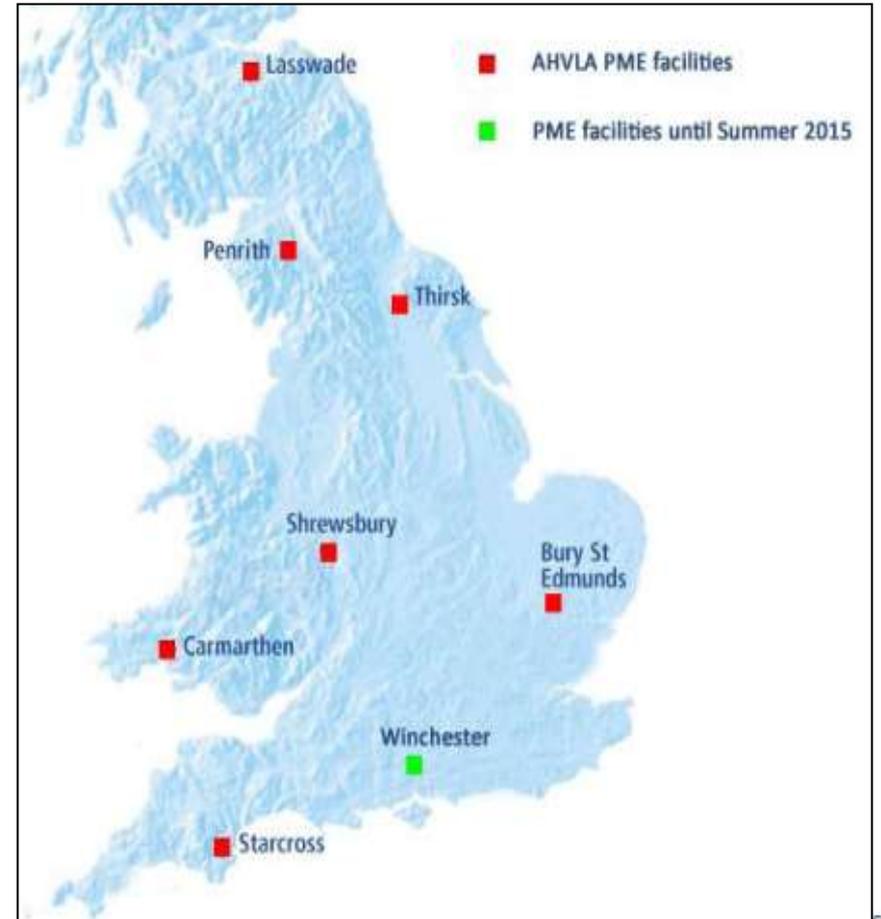
Key elements of new model

- Network of AHVLA PME facilities (reduced in number)
- Carcase transport system introduced for 3 years from some areas
- Inclusion of other expert PME providers in the system
- Training and supporting private vets and fallen stock industry to carry out more diagnostic PMEs
- Surveillance Intelligence Unit

Previous network of AHVLA PME facilities



New network of AHVLA PME facilities



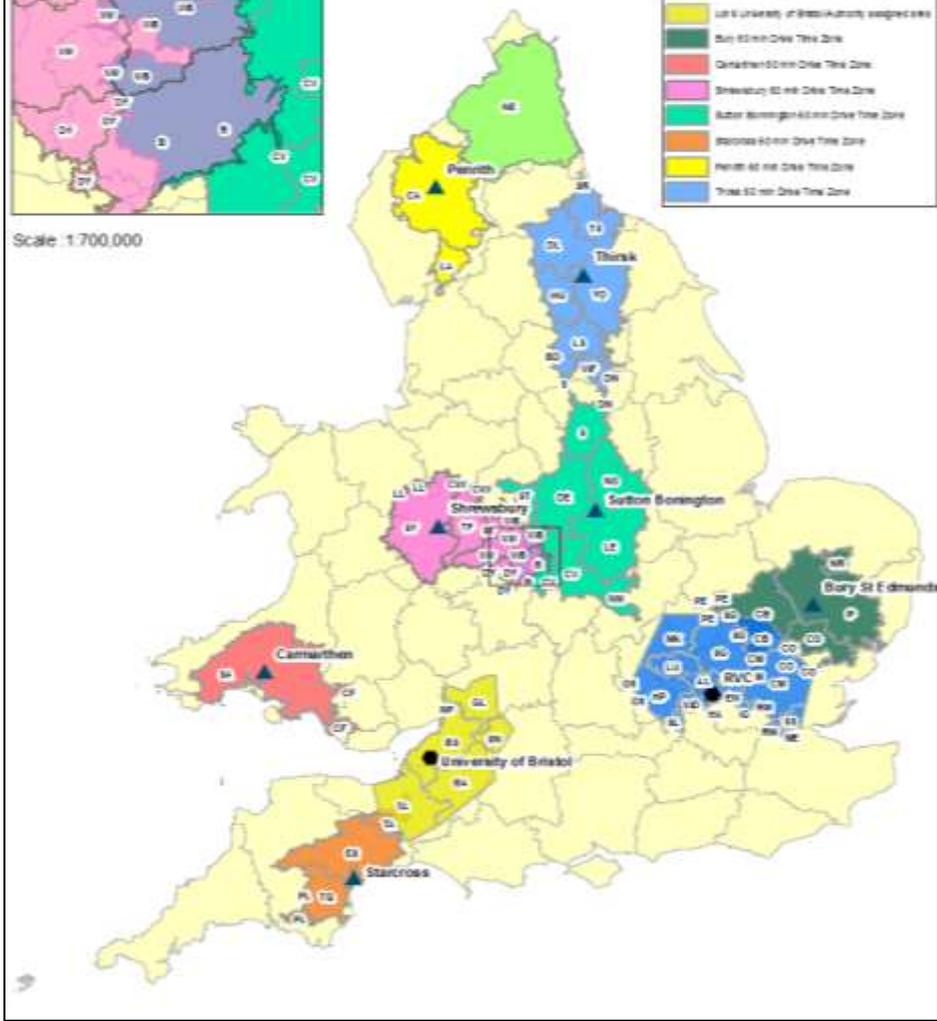
AHVLA Locations, Drive Time Zones & Postcodes

OFFICIAL



Scale: 1:700,000

- AHVLA Site
- ▲ AHVLA Hub Site
- Lut 1 - East of C.A. Authority, 30 mins zone
- Lut 2 from East - S.A.C. Authority, 30 mins zone
- Lut 3 University of Bristol Authority, 30 mins zone
- 30 min Drive Time Zone
- 45 min Drive Time Zone
- 60 min Drive Time Zone
- 75 min Drive Time Zone
- 90 min Drive Time Zone
- 105 min Drive Time Zone
- 120 min Drive Time Zone



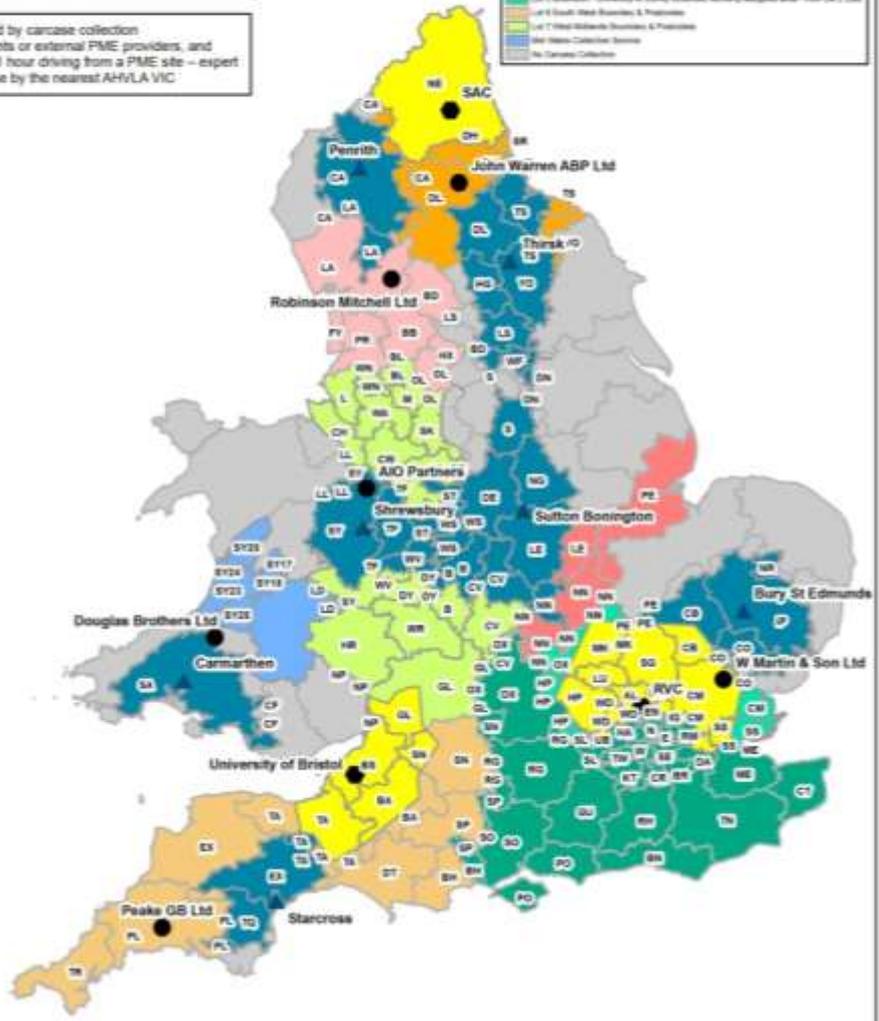
AHVLA, External PME & Collection Areas

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Not Covered in Wales - excess of 1 hour of PME Provider or without access to subsidies of collection arrangement.

Not covered by carcass collection arrangements or external PME providers, and more than 1 hour driving from a PME site – expert PME service by the nearest AHVLA VIC

- Carcass Collection Sites
- AHVLA Drive Thru Zones
- All Sites
- PME Sites
- LA 1 East Midlands - University of Derby Authority assigned area
- John Warren Collection Service
- Robinson & Mitchell Collection Service
- LA 2 South East - University of Derby Authority assigned area
- LA 3 Yorkshire - University of Derby Authority assigned area - Post LA2 East
- LA 4 South West Devonshire & Dorsetshire
- LA 5 West Midlands Devonshire & Dorsetshire
- LA 6 Wales Collection Service
- No Carcass Collection



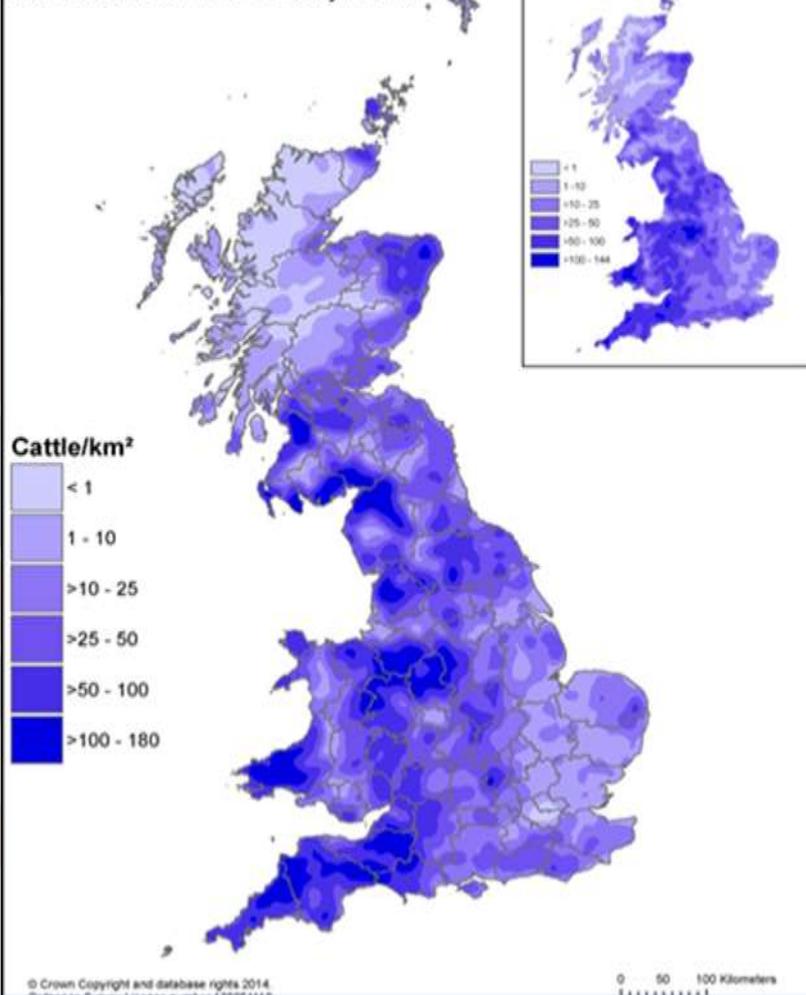
Communication & engagement

- Development of PVS / OV / Surveillance web gateway
- Looking at options to improve two-way communication flow inc. online forums, use of social media
- Development of PVS user group for process & system changes
- Similar activities to engage with farmers and industry groups
- Improve pathology training for private vets to enable more first opinion PME's at fallen stock centres or elsewhere, speeding up the diagnosis of more common issues as well as providing surveillance data

Surveillance Intelligence Unit

- Epidemiology and data analysis skills
- Species expert groups
- Engage with alternate data sources to improve coverage
 - Collate and analyse epidemiological, pathological and diagnostic testing results (from AHVLA and partner providers) & combine with knowledge of the livestock population and industry practices.
 - Explore other/new sources of data and intelligence to add value to the analyses to provide horizon scanning and reassurance of early warning of new and emerging threats.
 - Produce and publish reports that can be used to support evidence based decision making at all levels from farmers to Government

GB Cattle Population Density as Recorded in CTS July 2013



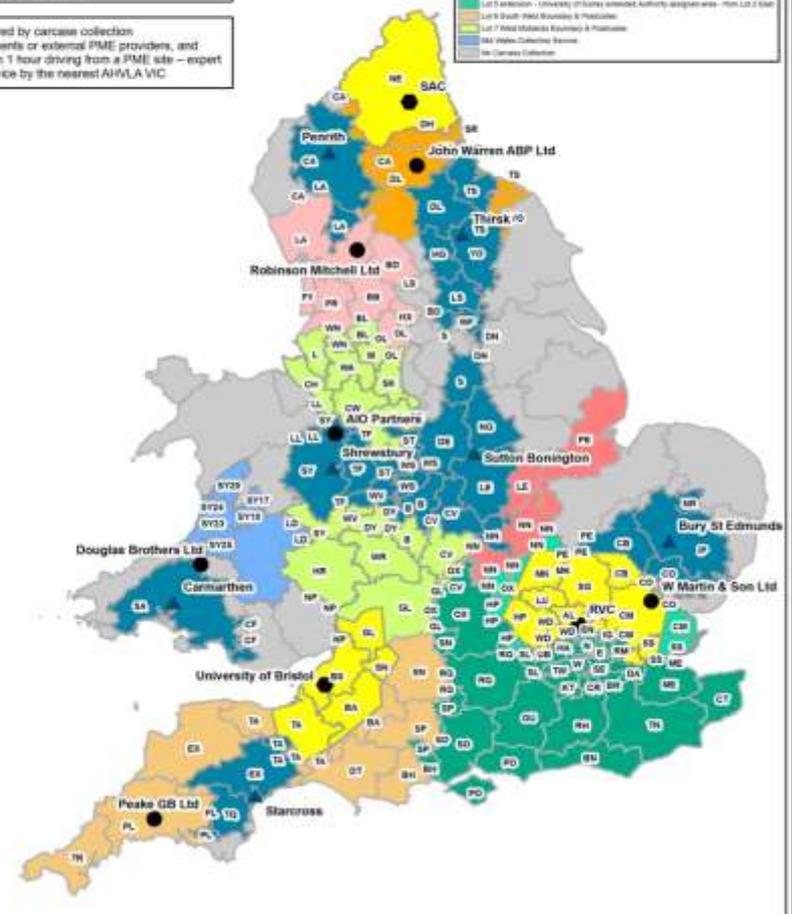
AHVLA, External PME & Collection Areas

OFFICIAL

not covered in Wales - excess of 1 hour PME Provider or without access to subsidies collection arrangement.

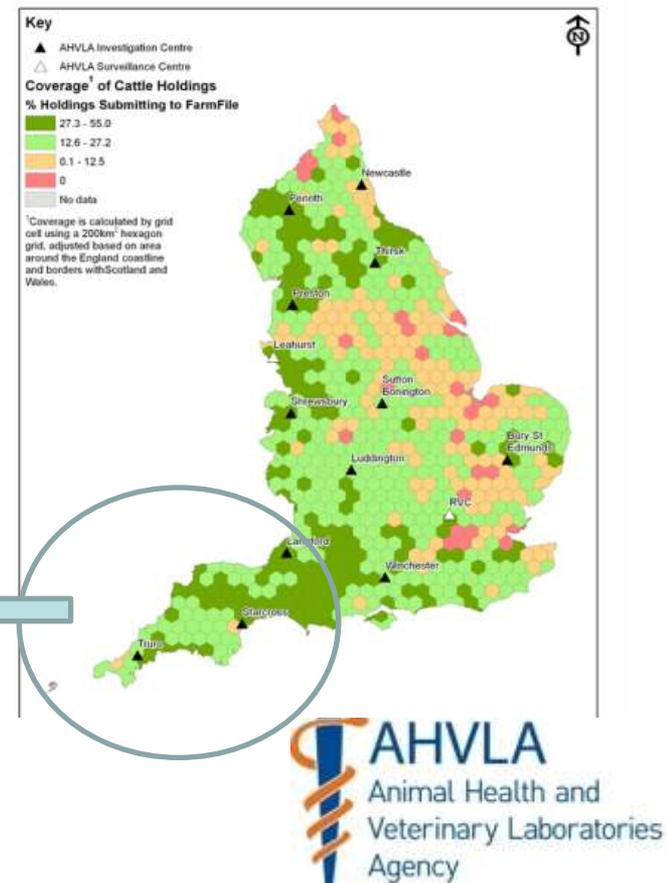
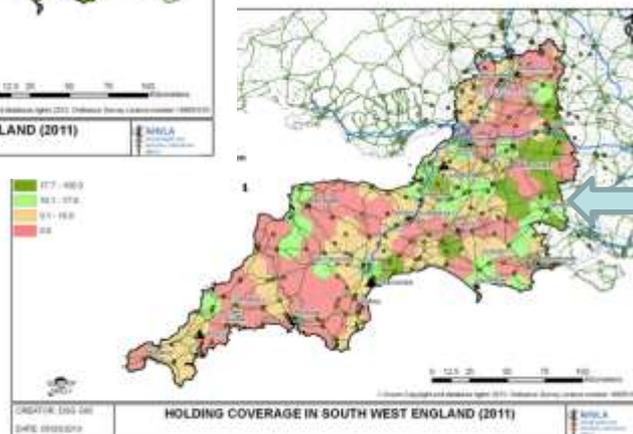
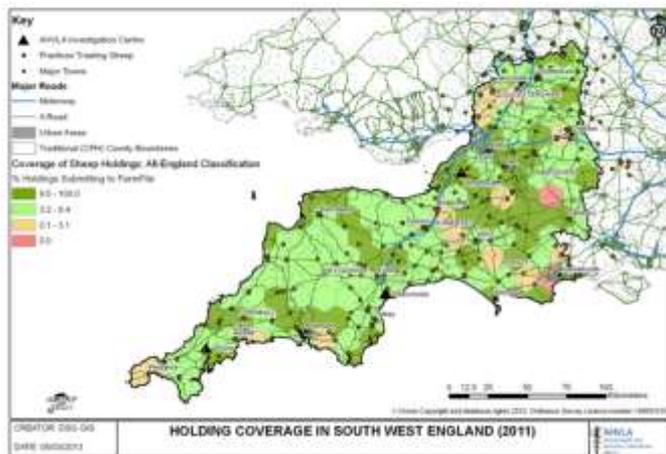
not covered by carcass collection arrangements or external PME providers, and more than 1 hour driving from a PME site - expert PME service by the nearest AHVLA VIC

- Carcass Collection Sites
- AHVLA Drive Thru Zones
- PME Sites
- PME Sites
- Lot 1 Road Stations - University of Surrey Authority designated area
- Lot 2 - Horse Collection Services
- Robinson & Mitchell Collection Service
- Lot 3 South East - University of Surrey Authority designated area
- Lot 5 collection - University of Surrey Authority designated area - from Lot 2 East
- Lot 6 South West Road Stations & Facilities
- Lot 7 Road Stations Equines & Poultry
- AHVLA Wales Collection Service
- No Carcass Collection

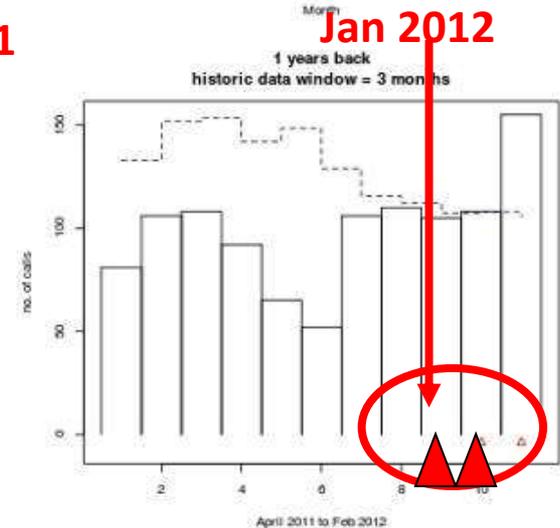
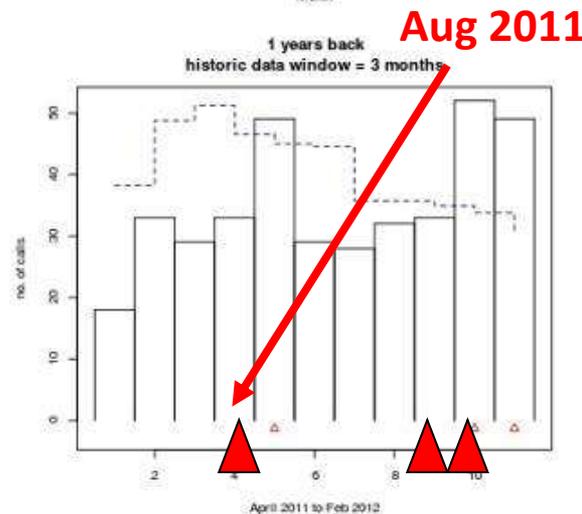
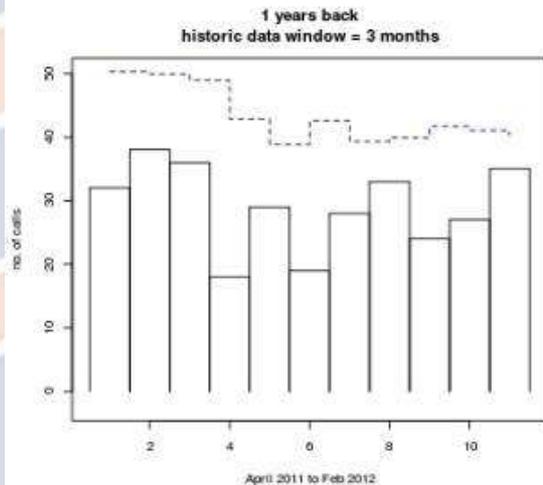
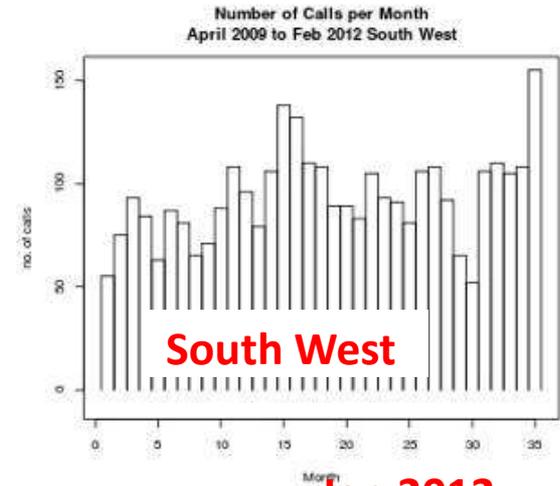
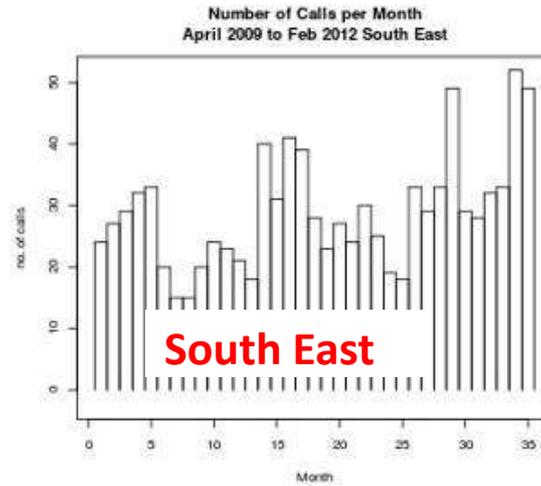
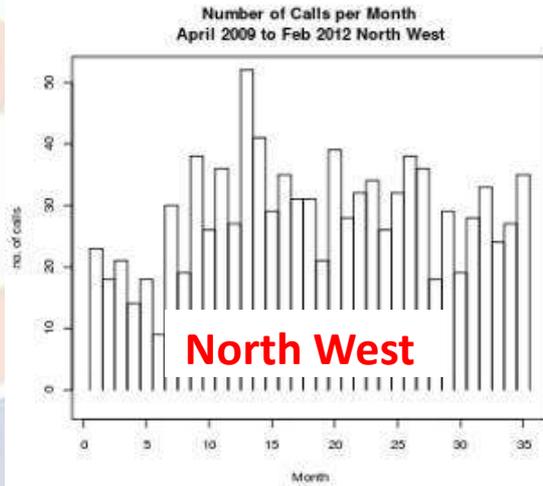


Applied epidemiology - weak spots in surveillance?

- Using laboratory submissions as a measure of veterinary engagement and a proxy for surveillance activity



Syndromic surveillance - exploiting unused data



Surveillance Gap analysis

- 29 gaps; cattle (10), sheep (12), pigs (11) and poultry (11)
- Most gaps around 'engagement' and 'risky behaviour'
 - Disengaged farmers
 - Early adopters of unproven husbandry methods
 - Geographical areas
 - Non-TB areas with fewer vet visits
 - Distant from post mortem sites

1. Quick look up table of surveillance data sources

Vet data	1	Active collection direct from private vets (formal sentinel data collection)	Formal collection of electronic data about farm visits, likely to include clinical data, gross path and provisional diagnostic outcome (sentinel system)
	2	Active collection direct from private vets (informal data collection from key informants)	Regular collection of information about animal health and unusual events from key informants
	3	OVS visits for inspection or testing	For example, Defra animal health and welfare visits, cross compliance visits on behalf of rural payments agency, TB testing. These visits currently collect specific information depending on the purpose of visit but may offer an opportunity to collect animal health data
	4	Notifiable disease reports	Collection of information from statutory reports of suspect notifiable disease including information about investigatory visits, will include clinical information
	5	OVS visits to investigate disease occurrence	For example anthrax investigations. Information not currently recorded about clinical signs or likely cause of death but could provide an opportunity to do so
	6	Pharmaceutical sales information	Could be used as a health indicator
Production data	7	Endemic disease recording	Information recorded by industry in health schemes , disease control initiatives or quality assurance schemes e.g. mastitis data and BPEX endemic disease records – outcomes may be based on clinical, laboratory or abattoir inspections
	8	Performance / production indicators	Information collected by industry support bodies about production / performance of individual animal or farms e.g. dairyco performance index
	9	Active collection directly from farms	Sentinel farms could provide information about clinical disease and production
Healthy culls to market or abattoir	10	Ante-mortem abattoir data	Includes clinical information from ante-mortem inspections
	11	Post-mortem abattoir data	Includes gross pathology from post-mortem inspections, FSA data available via RADAR
	12	Market inspections	Could provide an opportunity to record clinical disease occurrence
Pre-diagnostic and diagnostic laboratory data	13	AHVLA (SAC) laboratory network of sample submission data from private	Collection of data about samples or carcasses voluntarily submitted by private vets including demographic, clinical, gross pathology, laboratory results including antimicrobial resistance, diagnostic outcome or non-diagnostic outcome
	14	AHVLA (SAC) laboratory network of carcass submission data from private vets	Collection of data about carcasses voluntarily submitted by private vets including demographic, clinical, gross pathology, laboratory results, diagnostic outcome or non-diagnostic outcome
	15	AHVLA (SAC) surveillance intelligence network of other data from private vets	Collection of data about clinical cases identified by private vets in telephone calls and web-based which includes demographic and clinical information
	16	Private veterinary laboratories	Collection of data with samples submitted to private laboratories, may include some clinical information, will include laboratory diagnostic outcome
Fallen stock data	17	Mortality data (fallen stock)	Collected for TSE investigations in ruminants including cause of death in cattle, mortality data also available from cattle passport returns
	18	Animal movement data	For example CTS, AMLS. Also provides mortality information but without cause of death
Other surveillance networks	19	University surveillance networks	Could include both information collected at university visits to farms and data collected from local PVS, likely to include clinical, gross pathology, provisional diagnostic outcome and possibly laboratory test information
	20	Media based	Event-based systems collect data from various electronic sources of media information to provide evidence about the occurrence of health events
	21	Livestock populations outside the population of interest	Horizon scanning information to identify threats to the population of interest e.g. information from surveillance networks in other countries or information about disease occurrence in other farmed species
Surveys	22	Repeated active surveys	Designed to collect data about the occurrence of specific diseases
	23	Vector surveillance	Designed to collect data about the distribution and density of insect vectors.
Supporting data sources	24	Public health data	For zoonotic disease. Could be used to indicate the occurrence of disease in animal populations
	25	Wildlife population data	Could be used as an indicator of animal health issues
	26	Demographic data	For example census data which may provide information about changes in the population that may threaten health
	27	Economic indicators	For example changes in price structures which may impact on animal health
	28	General public	
	29	Supporting data	

Components 1-27 identified from previous work in ED1039
Components 28-29 identified from Surveillance 2014 consultation

Gap analysis

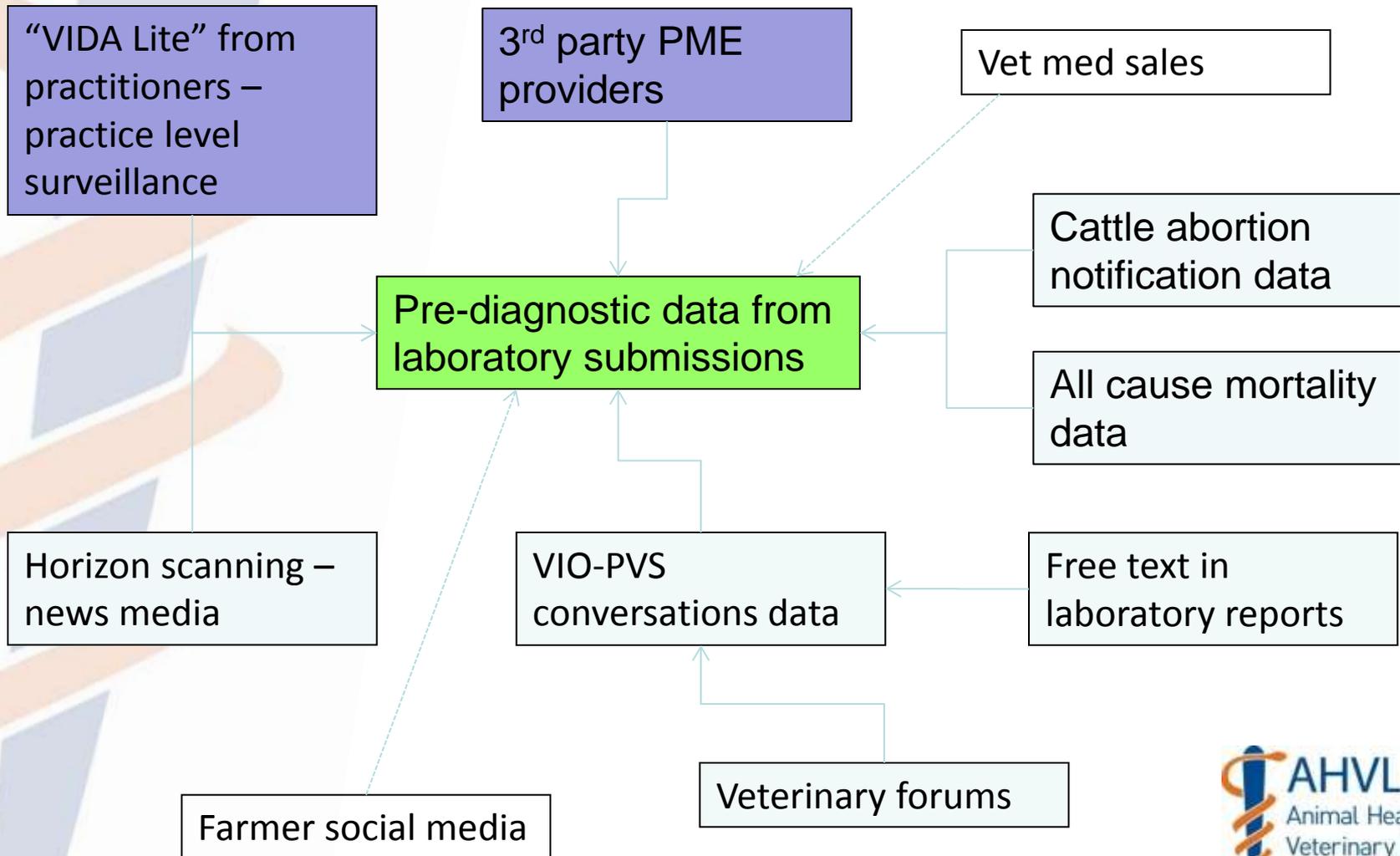
- 29 data sources
- Limited evaluation

[..\ED1039\2013-14\FINAL REPORTS\Annex 6 Document of surveillance data sources FINAL v1.0 310314.pdf](#)

Horizon scanning

- News, media and internet items
- Collaborative work with the ***Defence Science and Technology Laboratory (Dstl)***
 - ensures that innovative science and technology contribute to the defence and security of the UK
 - “speech tagging”
 - “sentence graph”
 - “information fusing” ...

Big data pilot



New reporting

Across the range of scanning surveillance activities

Multiple sources

Multiple contributors

01 July 2014

Year: 2014 Weeks 27 & 28



Scanning surveillance
national summary

Reporting weeks: 16 June to 29 June 2014

Cattle	Investigating alerts on increases in reproductive losses and early deaths in calves.
Small ruminant	Investigating telephone reports of ill thrift and mortality in lambs presenting with an unusual wet fleece.
Pigs	Enhanced testing for PED and continue to monitor the spread of PED in Europe. Information note produced.
Avian	Nothing to report.
MEFS [†]	Nothing to report.
Wildlife	First case of Myxomatosis in hares reported in GB.

Conversations data

Multiple cases of lambs with unusual presentation of 'wet fleeces'.

Syndromic surveillance

The 'herd early warning report identified increased cattle abortions in SE England.

The report on all cause cattle mortality for Jan-Mar 2014 has been published. It is noted that there is an increase in the number of deaths-on-farm in calves less than 6 months of age. The report is available here [\[link\]](#).

News monitor

Reports of PED continue to increase.

Scanning surveillance
analytics

Analysis of VIDA data show an increase in non-diagnosed abortion in cattle. There was a significant increase in the incidents of Johnes and rumen fluke recorded in cattle reported in Scotland during March-May 2014. Investigation of an alert following an increase in non-diagnosed skin cases in cattle in January suggests that cases were due to trauma caused by poorly designed feed barriers. [Link to cattle report.](#)

[†] Miscellaneous Exotic Farmed Species.

Responding to the novel

Reporting

- No barriers - trust and transparency
- Open communication – Government, European partners, livestock industry and other stakeholders
- Establish common evidence base and understanding of risk
- Work to develop generic contingency plan for new disease threats

Investigation and research

- Expertise to interpret alerts – investigate, monitor, negate?
- Collaboration – efficient, share skills & expertise
- Expertise – pathology, test development, new methods
- Capability across full range of threats – known and unknown
- Drawing on knowledge and resources of everyone that has an interest

Key messages

- Maintain capability to detect and respond
- Look to improve by using new methodologies and developing a more risk based approach
- Need agreement and understanding of roles and responsibilities, and build on partnership working
- Breadth of capability and deep expertise with networks in UK and internationally to deal with new threats



- Thank you for your attention

my presentation