

# Climate Change Risk Assessment and Adaptation Plan

**NHS Scotland  
Sustainability  
Conference  
2019**



# Why consider climate risks & options for adaptation

- Climate change impacts are pronounced for health and vulnerable communities
- Adapting now can save money in the future
- Mitigation is important BUT...
  - if all emissions stopped today, the climate would still change
- Adaptation measures can meet other agendas
- NHS Boards have a legal duty to prepare for climate change
  - specific duties in Climate Change (Scotland) Act 2009

# Why is this important?

“The climate emergency is a health emergency” (Simon Stevens (Chief Executive of NHS England, 5-9-2019))

Environment ▶ Climate change Wildlife Energy Pollution

**NHS**

**The NHS produces 5.4% of the UK's greenhouse gases. How can hospitals cut their emissions?**



House of Commons

Environmental Audit Committee

**Our Planet, Our Health**

Twenty-First Report of Session  
2017–19

*Report, together with formal minutes relating  
to the report*

*Ordered by the House of Commons  
to be printed 3 September 2019*





# What have the NHS done to date?

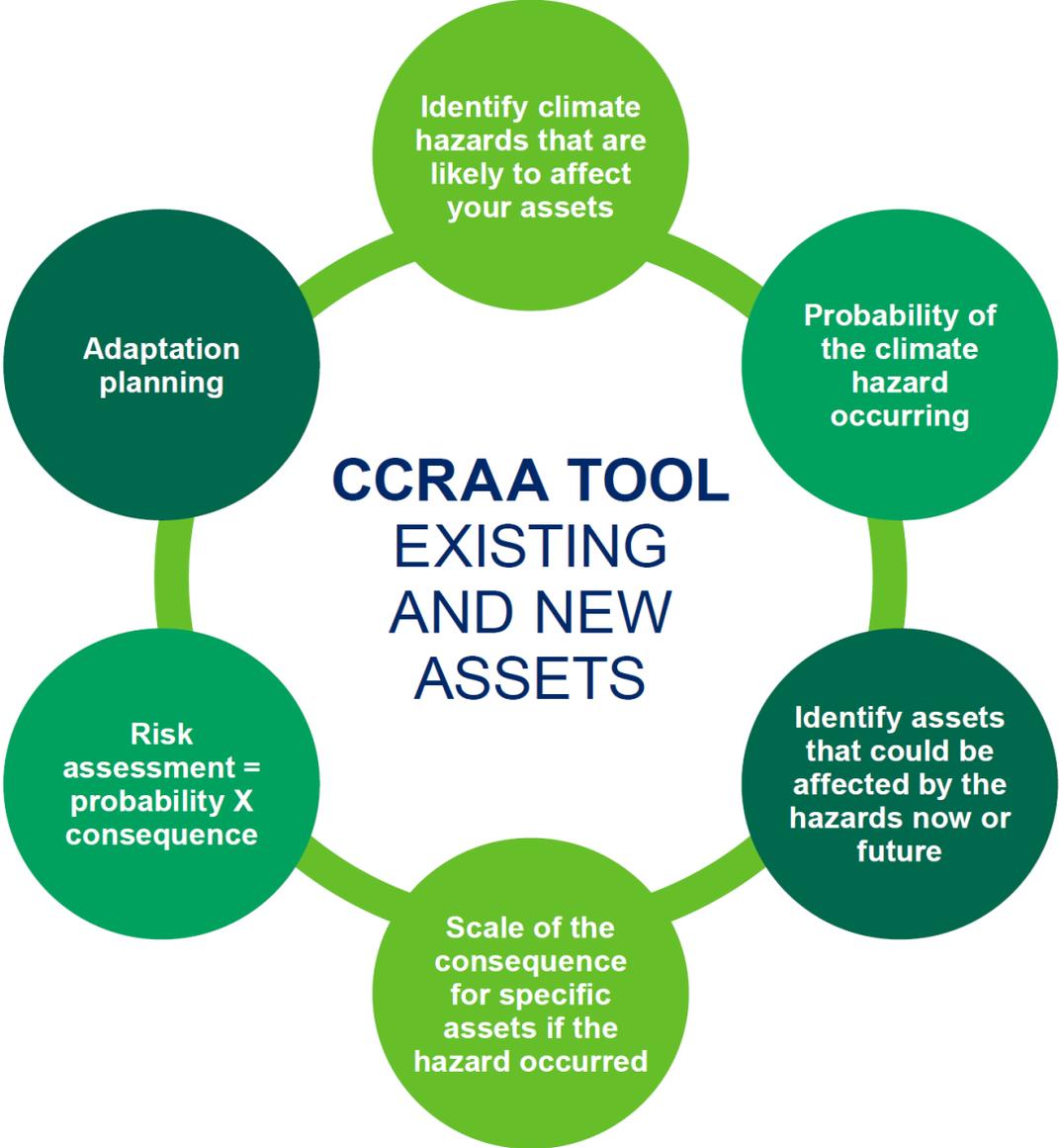
- Derived climate change impact reports for each NHS Board
- Undertaken high-level flood risk assessments to inform flood risk at core flood risk sites
- Developed the CC risk and vulnerability GIS assessment tool



# What does the CCRA and adaptation tool aim to do?

- Improve the resilience of your assets to current and future climate risks by providing a structured approach to:
  - identify current and future risks
  - assess their probability and impacts
  - prioritise risks
  - develop adaptation measures to address the risks
- Should help protect vulnerable sites and services
- Should help to reduce the cost of service disruption

# CCRA process





# CCRA tool focus

- Risk assessment focusing on both existing and new assets
- Current assets
  - those that are already in place and with a remaining design life of less than 30 years
- New assets
  - planned new assets, likely refurbishment (planned or potential) within next 30 years



# Who should be involved?

- Identify an individual to lead the process
- Establish a wider Steering Group - other departments and outside the NHS
- CCRA and Adaptation Planning process should be considered part of the Board's usual risk management requirements and processes
- Process is a combination of desk based assessment AND dialogue with partners (internal and external)

# Risk assessment process

Identify climate hazards

Consider previous hazards

Determine the probability of the hazard (score)

Consider the assets impacted

Identify the potential impact and derive a risk score



# Identify climate hazards

- The tool identifies climate hazards that are likely to affect Scotland now or in the future:

Higher average temperature and extended periods of hot weather

Extended periods of dry weather and drought

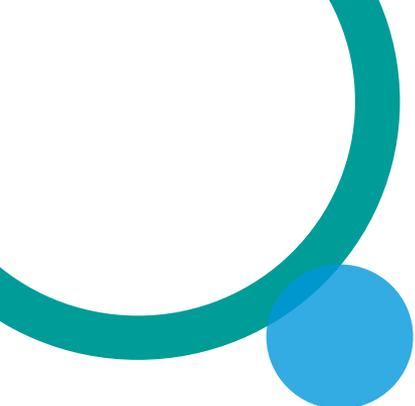
Heavy downpours

Storm surge and coastal inundation

Flooding

Cold spells (snow and ice)

Combined climatic effects (storms, high winds, lightning, fog)



# Consideration of previous hazards

Tool is focused at Board level but will be useful to identify any specific assets that have previously been affected by severe weather events.

- Daily incident reporting
- Health and Safety reports
- Estates and facilities meeting minutes
- Local Authority Local Climate Impact Profiles (LCCLIPs)
- High level Climate Change Impact Assessments (CCIAs) produced for each NHS Board by HFS
- Flood Risk Assessments (FRAs) produced by HFS

# Probability of the hazard occurring

- Focus on probability of hazard occurring, not impacts
- Time periods:
  - Probability of hazards occurring within the next 20 years for current assets (UKCP09 projections for 2030s)
  - Probability of hazards occurring within the next 50 years for new assets (UKCP09 projections for 2050s)

Probability					
Score	1	2	3	4	5
Descriptor	Negligible	Rare	Unlikely	Possible	Probable
Likelihood of occurrence	Will only occur in exceptional circumstances. >0.005% >1 in 20,000 chance	Will only occur in rare circumstances. >0.05% >1 in 2,000 chance	Unlikely to occur. >0.5% >1 in 200 chance	Reasonable chance of occurring. >5% >1 in 20 chance	More likely to occur than not. >50% >1 in 2 chance

- Standard probability ranges provided within the tool...

Climate Hazard	Climate Hazard Details	Probability Score
Extended periods of dry weather and drought	Water supply shortages / loss of water supply. Lack of rain in Highland can lead to water shortages within 3 weeks. No issues currently identified. Loss of plant cover and vegetation due to dry conditions could impact on use of greenspace, including for therapeutic interventions.	4
Heavy downpours and driving rain (includes changes in moisture content of air and soil)	Degradation of building fabric and fittings due to water ingress leading to increased maintenance requirements (e.g. roughcasting, external plaster rendering to reduce damp problems, leaking flat roofs, window seam failure). Slopes and retaining structures unstable due to saturation of the soil and / or drying out of the subsoil.	5
Storm surge, coastal inundation and coastal erosion	Damage to coastal roads and closure of ferry services preventing access to and from the islands. Damage to essential energy infrastructure and disruption of utility supplies with loss of energy supply for heating. Damage to foundations and bearing walls. Increased number of patients requiring access to emergency services (4 x Budgies, increased 999	4

# Identify assets that could be affected

Climate Hazard	Climate Hazard Details	Probability Score	Asset/Operations Group	Asset/Operations Group Details
Extended periods of dry weather and drought	Water supply shortages / loss of water supply. Lack of rain in Highland can lead to water shortages within 3 weeks. No issues currently identified. Loss of plant cover and vegetation due to dry conditions could impact on use of greenspace, including for therapeutic interventions.	4	Laundries	Raigmore laundry could be affected by water supply shortages.
Heavy downpours and driving rain (includes changes in moisture content of air and soil)	Degradation of building fabric and fittings due to water ingress leading to increased maintenance requirements (e.g. roughcasting, external plaster rendering to reduce damp problems, leaking flat roofs, window seam failure). Slopes and retaining structures unstable due to saturation of the soil and / or drying out of the subsoil.	5	GP surgeries & community health centres	Fort William Health centre issues with water ingress. Ross Memorial and Dingwall Health Centre potential for subsidence and structural damage requiring underpinning / demolition due to shrinkage of clay soils.
Storm surge, coastal inundation and coastal erosion	Damage to coastal roads and closure of ferry services preventing access to and from the islands. Damage to essential energy infrastructure and disruption of utility supplies with loss of energy supply for heating. Damage to foundations and bearing walls. Increased number of patients requiring access to emergency services (4 x Budgies, increased 999	4	Hospitals	Caithness General and Belford Hospitals particularly vulnerable to damage (on coast) with potential for cancellation of routine outpatient appointments, cancellation of non-urgent elective operations, transfer of patients, emergency evacuation / potential for patient surge in the event of a storm.

# Assess scale of impact if hazard occurred

- Focus is on the impact if the hazard occurred, not whether it is likely to occur or not
- Review documentation on previous and potential impacts and discuss with Steering Group and other colleagues
- Score the potential impact using the guidance in the CCRA Tool:

Risk					
Score	1	2	3	4	5
Descriptor	Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood of occurrence	Interruption in a service which does not impact on the delivery of patient care or the ability to continue to provide a service.	Short term disruption to service with minor impact on patient care.	Some disruption in service with unacceptable impact on patient care. Non-permanent loss of ability to provide a service.	Sustained loss of service which has serious impact on delivery of patient care.	Permanent loss of core service or facility.

# Derive a risk score

Climate Hazard	Climate Hazard Details	Probability Score	Asset/Operations Group	Asset/Operations Group Details	Implications	Impact Score	Combined Risk
Extended periods of dry weather and drought	Water supply shortages / loss of water supply. Lack of rain in Highland can lead to water shortages within 3 weeks. No issues currently identified. Loss of plant cover and vegetation due to dry conditions could impact on use of greenspace, including for therapeutic interventions.	4	Laundries	Raigmore laundry could be affected by water supply shortages.	Increased strain or loss of IT and emergency systems	2	8
Heavy downpours and driving rain (includes changes in moisture content of air and soil)	Degradation of building fabric and fittings due to water ingress leading to increased maintenance requirements (e.g. roughcasting, external plaster rendering to reduce damp problems, leaking flat roofs, window seam failure). Slopes and retaining structures unstable due to saturation of the soil and / or drying out of the subsoil.	5	GP surgeries & community health centres	Fort William Health centre issues with water ingress. Ross Memorial and Dingwall Health Centre potential for subsidence and structural damage requiring underpinning / demolition due to shrinkage of clay soils.	Structural damage	4	20
Storm surge, coastal inundation and coastal erosion	Damage to coastal roads and closure of ferry services preventing access to and from the islands. Damage to essential energy infrastructure and disruption of utility supplies with loss of energy supply for heating. Damage to foundations and bearing walls. Increased number of patients requiring access to emergency services (4 x Budgies, increased 999 calls), specialist and community health care services (intensive emergency care / GP / nurse	4	Hospitals	Caithness General and Belford Hospitals particularly vulnerable to damage (on coast) with potential for cancellation of routine outpatient appointments, cancellation of non-urgent elective operations, transfer of patients, emergency evacuation / potential for patient surge in the event of a storm.	Patient access	4	16

# Adaptation planning



# Assess scale of impact if hazard occurred

Identify current adaptation measures

Proposed management approach and adaptation measures (Tolerate, Treat, Transfer, Terminate)

Assess residual risk

Identify lead responsibility and delivery partners

Assess timeline and costs (and monitor)



# Identify appropriate management approach

- Discussion required with Steering Group (and other colleagues/partners) to identify the appropriate approach:
  - **Tolerate** – with existing measures in place, risk is acceptable, and no further action required
  - **Treat** – actions needed to manage the risk – this requires identification of adaptation measures
  - **Transfer** – responsibility for the risk can be transferred and managed by another partner
  - **Terminate** – residual risk likely to be too high to accept so asset needs to be decommissioned or relocated

# Assess scale of impact if hazard occurred

Current Measures To Address The Risk	Management Approach For New Measures	Recommended Adaptation Measures	Residual Risk Score	Residual Risk Comment	Risk Owner
Not identified	Treat	Identify options for alternative arrangements / back up laundry services in the event of an emergency	8	Further work needed to establish 8 alternative arrangements in the event of failure at Raigmore	John Burnside,
The condition, safety and resilience of the structural system of ??? buildings and architectural elements has been assessed	Treat	Ongoing maintenance plan priority / PAMS. Review building stock to assess exposure to subsidence. Develop inspection regimes (soil investigations and engineer inspection reports)	16	Potential risk is high but will be managed through prioritisation of backlog maintenance	John Burnside,
Highland Council, Scottish Ambulance Service, HITRANS and NESH have set up the Highland Integrated Transport Provision Project, piloting an integrated transport service through promotion of a coordinated hub, the Lochaber Transport Advice and Bookings Service	Treat	Maintain and roll out pilot system depending on results. Identify options for mobilisation of housing / other accomadation locally for front line health care workers in high risk areas	16	Further work needed to establish working relations and agreements with other agencies in high risk areas	John Burnside,



# Next steps?

- NHS Highland has tested the tool and completed a draft CCRA and adaptation plan
- Tool will be rolled out to other boards
  - Workshops planned November 2019
- CCRA will be completed 2020-2021



**Thank you  
Q&A**

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