<table>
<thead>
<tr>
<th>Key message 1: (Outcomes)</th>
<th>Congenital Audit: Hospitals providing care for children with congenital heart disease have low levels of 30-day mortality. Survival rates are high and continue to be better than predicted.</th>
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</thead>
<tbody>
<tr>
<td>Key message 2: (Outcomes)</td>
<td>Angioplasty &amp; Heart Attack Audits: The use of angiography and angioplasty are both driving outcome improvements for patients with coronary artery disease. Improved heart attack outcomes are associated with the increased use of angiography and fewer complications are being observed in angioplasty.</td>
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<td>Key message 3: (Outcomes)</td>
<td>Adult Cardiac Surgery: Adult cardiac surgery outcomes continue to improve. Surgical mortality rates have fallen over the last 10 years to under 2.5% in 2016-17, in spite of the fact that older and sicker patients are undergoing surgery. Post-operative stroke rates have been analysed for the first time and are well below 1% for first time coronary artery bypass graft (CABG) operations. Serious wound infections occurred in around one in 300 cases (although rates of reporting on complications are variable with poor data completeness from some hospitals).</td>
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<td>Key message 4: (Outcomes)</td>
<td>Heart failure Audit: Heart failure outcomes are improving as a result of access to specialist care, drugs and rehabilitation, with overall in-hospital mortality falling to under 10% in 2016/17. Patients receiving specialist care have a higher survival rate as do those leaving hospital on all three recommended disease-modifying drugs.</td>
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<tr>
<td>Key message 1: (Safety)</td>
<td>Congenital Audit: NHS England has published expected standards for the optimal volume of surgical procedures performed by individual surgeons at congenital heart disease centres. Currently not all centres meet these standards. Hospitals undertaking congenital cardiac surgery should work with specialist commissioners and aim to meet the NHS England Standards for the number of surgeons and associated volume of surgical activity. All congenital heart centres should fully comply with the data collection requirements of the national audit programme.</td>
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<tr>
<td>Key message 2: (Safety)</td>
<td>Angioplasty Audit: The British Cardiovascular Intervention Society has published expected standards for the volume of activity at hospitals performing angioplasty. The majority of angioplasty centres perform levels of activity above the minimum.</td>
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recommended numbers but some centres do not to reach these standards.

**Hospitals with an angioplasty centre should aim to meet the recommended annual activity volumes for angioplasty procedures.**

| Key message 3: (Safety) | **Angioplasty Audit:** There has been a year-on-year increase in the use of radial artery access for angioplasty and the use of modern generation drug-eluting stents, both of which are associated with improved outcomes for patients. There are still some centres however, that fall well short of the performance of centres with the highest rates.

  Clinical leads should ensure they are using radial artery access and drug-eluting stents whenever this is clinically appropriate to do so. Patients should be provided with information that informs them of why radial artery access is not being used. |

| Key message 4: (Safety) | **Angioplasty Audit & Adult Cardiac Surgery Audit:** Transcatheter aortic valve implantation (TAVI) is an effective treatment for patients with severe aortic stenosis who are considered as too high risk or as high risk for surgical aortic valve replacement. Many TAVI procedures are now performed under local anaesthetic and are associated with a more rapid recovery and a shorter length of stay in hospital.

  Commissioners and clinical leads should ensure that patients who are at high risk for surgical aortic valve replacement are considered for TAVI. |

| Key message 5: (Safety) | **Heart Attack Audit:** Patients with higher-risk heart attacks who self-present to a hospital without angioplasty facilities are disadvantaged because they then have to be transferred to an angioplasty-capable hospital; these delays impact on outcomes.

  Patients with a suspected heart attack should call an ambulance rather than take themselves to hospital. |

| Key message 6: (Safety) | **Heart Attack Audit:** There has also been a fall-off in performance in call-to-door and therefore overall call-to-balloon times for patients receiving primary angioplasty. This may relate to pressures currently experienced by the ambulance services.

  Ambulance services need to minimise delays in diagnosing and transferring higher-risk heart attacks and Ambulance Trusts should review ambulance performance times to ensure they do not impact on angioplasty call to balloon times. |
| Key message 7: (Safety) | **Heart Attack Audit:** The hallmark of a higher-risk heart attack is ‘ST-elevation on the ECG’ and designing a pathway that ensures a timely transfer of patients with this to their local angioplasty services or to an angioplasty-capable hospital is a key improvement aim for all providers.  

**Medical directors and their clinical leads should have clinical pathways that ensure the rapid detection of higher-risk heart attacks.** |
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| Key message 8: (Safety) | **Heart Attack Audit:** Primary angioplasty is now the default mode of reperfusion for patients with higher-risk heart attacks. The national data for door-to-balloon times for patients undergoing primary angioplasty are within the standards set but there is still unexplained variation between centres.  

**Those centres with poorer performance for angioplasty times should seek advice and learn from centres with the best performance on how they achieve their results.** |
| Key message 9: (Safety) | **Adult Cardiac Surgery Audit:** Delays for elective and urgent coronary artery bypass grafting have improved but there is still considerable variation between centres with some hospitals showing much longer waiting times than others. These could learn from the improved use and allocation of resources from hospitals with shorter times.  

**Hospitals with longer waiting times for adult cardiac surgery should reduce these by seeking advice and learning from centres with good performance.** |
| Key message 1: (Effectiveness) | **Congenital Audit:** Antenatal diagnosis of congenital heart disease requiring surgical or interventional treatment in infancy improves outcomes. For children with congenital heart disease requiring a surgical or interventional treatment during infancy, there continues to be year-on-year improvements in the antenatal diagnosis of the congenital malformation, although considerable regional variation persists. More than 4 in 10 of these children are now antenatally diagnosed.  

**Commissioners and providers of obstetric services with the support of tertiary centre fetal cardiologists should ensure that there is access to training and appropriate equipment for sonographers to support the pre-natal detection of congenital heart conditions.** |
| Key message 2: (Effectiveness) | **Heart Attack Audit:** Patients with lower-risk heart attacks as their primary diagnosis benefit from being cared for on cardiology wards where possible.  
Hospital providers and Directors of Nursing should review their clinical pathways for patients with lower-risk heart attacks as their primary diagnosis. |
| Key message 3: (Effectiveness) | **Heart Attack Audit:** Heart attack patients ideally benefit from the appropriate combined use of angiography, revascularisation, stopping smoking and appropriate advice on life-style choices, optimal secondary preventive medication and cardiac rehabilitation.  
Commissioners should expect and clinicians should provide an evidence-based ‘bundle-of-care’ for patients with heart attacks. |
| Key message 4: (Effectiveness) | **Heart Attack & Angioplasty Audits:** Almost half of all patients with lower-risk heart attacks are not receiving treatment within current guidelines on the time to angiography and there is significant variation in performance between centres. Patients presenting to a hospital without angioplasty facilities experience longer delays. Improvement in the timeliness of access to treatment could result in significant reductions in lengths of stay in hospital for patients.  
Medical Directors and clinical leads should review their local patient flow data to ensure that the time taken from presentation and diagnosis to angiography and revascularisation for patients with lower-risk heart attacks is as efficient as possible. |
| Key message 5: (Effectiveness) | **Heart Failure Audit:** Patients admitted to hospital with heart failure who are cared for in a cardiology ward are more likely to be seen by a heart failure specialist team and significantly more likely to receive the recommended disease-modifying drugs. There has been an increase in the proportion of patients admitted to medical wards who are seen by the specialist teams but there is considerable variation between hospitals.  
Hospital providers and Directors of Nursing should review their pathways for patients with heart failure and where this is a primary diagnosis these patients should ideally be cared for on a cardiology ward with access to heart failure specialist teams. |
| Key message 6: | **Heart Failure Audit:** Access to specialist follow-up and to cardiac rehabilitation services are associated with improved |
| **Key messages: (NCAP development)** | • Focus the audits on **defining ambitious standards for quality of care** including measuring all relevant aspects of the care pathway that have most potential to improve patient care, incorporating new treatments into audits in a timely fashion, providing more timely and frequent reporting of data, with better visualisation of data to support the communication of the key improvement messages.

• Implement **spotlight ‘organisational’ audits** to help to understand the various inter-related changes that are made by hospitals in delivering improvements to services including staffing, clinical and pathway protocols, levels of infrastructure, governance, partnership working and training.

• Include **patient experience measures** that help improve an understanding of quality of life issues for patients.

• Communicate the impact of changing demographics and patient profiles to support those commissioning and delivering services.

• Make use of increased data linkages to explore system-wide factors and **track the entire ‘patient journey’.** |

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**100 word summary or abstract of the report:**

The National Cardiac Audit Programme 2018 Annual Report covers over 300,000 records collected in the following five clinical areas: Congenital Heart Disease, Heart Attack, Angioplasty, Adult Surgery and Heart Failure. This report highlights aspects of safety, clinical effectiveness and patient outcomes. The findings recognise areas of clinical excellence that can be adopted across the NHS, but also identifies areas where care falls below expected standards that have been used to determine national quality improvement aims for clinicians, service managers and commissioners. A further report will be issued later in the year to include the findings and quality improvement recommendations from the Arrhythmia audit.