LIPID MANAGEMENT
What does NICE really say?

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What has changed since NICE CG67?

• Implementation of NHS Health checks
• Move of QoF oversight into NICE Quality Standards
• Updated risk calculator systems
  – QRISK2 etc
• Updated lipid risk relationships & measurements
  – ERFC- nonHDL-C
  – VLDL- accuracy of cLDL-C
• Updated meta-analyses of statin trials
  – CTT group
• Updated evidence on combination therapy
  – Fibrates: ACCORD (lipids)
  – Niacin: AIM-HIGH & HPS2/THRIVE
• New prices for off-patent statins- changes TA94 HE model
Lipids: screening and the basics

• Initial non-fasting lipid profile
  – TC, TG, HDL-C & nonHDL-C
  – Non-HDL-C = LDL-C + approx 0.8mmol/L
    • i.e. LDL-C 2.00mmol/L = nonHDL-C 2.6 mmol/L
    • i.e. LDL-C 3.00mmol/L – nonHDL-C 3.8mmol/L

• TC >9mmol/L
  – Consider FH even in no family history of CHD

• TG > 20 mmol/L
  – If not alcohol or new DM- refer to Lipid clinic

• TG 11-20mmol/L
  – Rpt in 7 days; consider referral or advice
Changes to lipid efficacy assessment: switch to non-HDL-C

- LDL-C Friedewald
  - Poor calibration
  - Complex adjustment matrix
- Non-HDL-C better for CVD risk
- NHS Health Check
  - Non-Fasting rate
  - DNA rate for fasting
  - Move to HbA₁c for DM
- GP workload pressure

Rabar S et al; BMJ 2014 & Martin S et al; JAMA 2013; 310 : 2061
CV Risk Assessment Recommendations

• For the primary prevention of CVD in primary care, use a **systematic strategy** to identify people who are likely to be at high risk

• Prioritise people for a full formal risk assessment if their estimated 10-year risk of CVD is ≥10%

• Use the QRisk2 risk assessment tool to assess CVD risk for the primary prevention of CVD in people up to and including age 84 years (except CKD)
Explaining the fall in coronary heart disease deaths in England & Wales 1981-2000

- Risk Factors worse +13%
  - Obesity (increase) +3.5%
  - Diabetes (increase) +4.8%
  - Physical activity (less) +4.4%

- Risk Factors better -71%
  - Smoking -41%
  - Cholesterol -9%
  - Population BP fall -9%
  - Deprivation -3%
  - Other factors -8%

- Treatments -42%
  - AMI treatments -8%
  - Secondary prevention -11%
  - Heart failure -12%
  - Angina: CABG & PTCA -4%
  - Angina: Aspirin etc -5%
  - Hypertension therapies -3%

68,230 fewer deaths in 2000

Unal, Critchley & Capewell
Circulation 2004 109(9) 1101
Welcome to the QRISK®2-2014 risk calculator: http://qrisk.org

About you:
- Age (25-84): 56
- Sex: Male
- Ethnicity: White or not stated
- Postcode: leave blank if unknown

Clinical information:
- Smoking status: non-smoker
- Diabetes status: none
- Angina or heart attack in a 1st degree relative < 60?: No
- Chronic kidney disease?: No
- Atrial fibrillation?: No
- On blood pressure treatment?: No
- Rheumatoid arthritis?: No
- Cholesterol/HDL ratio: 5.8
- Systolic blood pressure (mmHg): 156
- Body mass index:
  - Height (cm): 180
  - Weight (kg): 96

Your results:
Your risk of having a heart attack or stroke within the next 10 years is: 11.5%

In other words, in a crowd of 100 people with the same risk factors as you, 12 are likely to have a heart attack or stroke.

Your score has been calculated using estimated data, as some information was left blank.

Your body mass index was calculated as 29.63 kg/m².

How does your 10-year score compare?

- Your 10-year QRISK®2 score: 11.5%
- The score of a typical person with the same age, sex, and ethnicity: 9.7%
- Relative risk*: 1.2
- Your QRISK® Heart Age**: 59

* This is derived from all people of your age, sex and ethnic group, whatever their clinical information.
** Your relative risk is your risk divided by the typical person's risk.
*** Your QRISK® Heart Age is the age at which a typical person of your sex and ethnicity has your 10-year QRISK®2 score.
Framingham study
lifetime risk: 2 CVD RFs matter

Lloyd-Jones D et al; Circulation 2006:113;791
Limitations of CVD risk calculation: 20% threshold


Jackson RD et al; BMJ 2009; 339: b2673
THIN Cohort: Consequences of changing to 10% risk from 20%

Total patients

- <10: 70%
- 10-20: 20%
- >20: 10%

CVD events

- <10: 33%
- 10-20: 37%
- >20: 30%

Collins GS et al; BMJ 2009; 339: b2584

N=1,070,000   age 35-74
Lifestyle
Dietary interventions

- Dated studies
- Poor Evidence
- Modern evidence
  - PREDIMED underpowered
- Conclusions
  - Total fat intake < 30% of energy intake,
  - Saturated fats < 7% of energy intake,
  - Dietary cholesterol < 300 mg/day
  - Saturated fats replaced by MUFA or PUFA fats.
  - No role for plant sterols

Eat food, not too much; mostly plants.

Michael Pollan (2009)
MRFIT- the personalised lifestyle intervention trial

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Number of Men With Event (%)</th>
<th>HR</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SI</td>
<td>UC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall composite CVD endpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfatal or fatal CVD</td>
<td>581 (9.0)</td>
<td>652 (10.1)</td>
<td>0.89</td>
<td>0.79–0.99</td>
</tr>
<tr>
<td>Nonfatal and fatal composite CVD endpoints</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfatal CVD</td>
<td>460 (7.2)</td>
<td>529 (8.2)</td>
<td>0.87</td>
<td>0.76–0.98</td>
</tr>
<tr>
<td>Fatal CVD</td>
<td>139 (2.2)</td>
<td>146 (2.3)</td>
<td>0.95</td>
<td>0.76–1.20</td>
</tr>
<tr>
<td>Components of composite CVD endpoint not shown in lower half of Table 2*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal or nonfatal stroke</td>
<td>49</td>
<td>41</td>
<td>1.20</td>
<td>0.79–1.81</td>
</tr>
<tr>
<td>Nonfatal stroke</td>
<td>36</td>
<td>30</td>
<td>1.20</td>
<td>0.74–1.95</td>
</tr>
<tr>
<td>Fatal stroke</td>
<td>13</td>
<td>11</td>
<td>1.18</td>
<td>0.53–2.64</td>
</tr>
<tr>
<td>Impaired renal function*</td>
<td>9</td>
<td>11</td>
<td>0.82</td>
<td>0.34–1.97</td>
</tr>
<tr>
<td>Other fatal CVD</td>
<td>10</td>
<td>10</td>
<td>1.00</td>
<td>0.42–2.40</td>
</tr>
</tbody>
</table>

Stamler J et al; JAHA 2012; 1 : e 003640

N=12866
Lipid Lowering Treatment

• When a decision is made to prescribe a statin use a statin of high intensity and low acquisition cost

• Before starting lipid modification therapy for the primary prevention of CVD, take at least sample to measure a full lipid profile.

• A fasting sample is not needed

• Exclude familial lipid disorders or secondary causes of dyslipidaemia
## Defining recommendations

<table>
<thead>
<tr>
<th>Targets</th>
<th>Drug-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consistent with epidemiology</td>
<td>• Consistent with trials</td>
</tr>
<tr>
<td>• Rare in clinical trials</td>
<td>– Exception limits defined</td>
</tr>
<tr>
<td>• Traditional output</td>
<td>• Common trial design</td>
</tr>
<tr>
<td>• Focused on single risk factor</td>
<td>• Novel output</td>
</tr>
<tr>
<td>• Set on 50(^{th}) centile</td>
<td>• Focused on overall risk</td>
</tr>
<tr>
<td>• Requires multiple monitoring</td>
<td>• Centile-independent</td>
</tr>
<tr>
<td></td>
<td>• Minimal monitoring required</td>
</tr>
</tbody>
</table>
Comparing statin intensity

### US comparison

<table>
<thead>
<tr>
<th>Statin Therapy</th>
<th>Daily Dose</th>
<th>&lt;50%</th>
<th>30-50%</th>
<th>&gt;50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atorvastatin</td>
<td>40–80 mg</td>
<td>10 (20) mg</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rosuvastatin</td>
<td>20 (40) mg</td>
<td>10 mg</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Simvastatin</td>
<td>-</td>
<td>20–40 mg**</td>
<td>10 mg</td>
<td>-</td>
</tr>
<tr>
<td>Pravastatin</td>
<td>-</td>
<td>40 (80) mg</td>
<td>10–20 mg</td>
<td>-</td>
</tr>
<tr>
<td>Lovastatin</td>
<td>-</td>
<td>40 mg</td>
<td>20 mg</td>
<td>-</td>
</tr>
<tr>
<td>Fluvastatin</td>
<td>-</td>
<td>80 mg (Fluvastatin XL)</td>
<td>20–40 mg</td>
<td>-</td>
</tr>
<tr>
<td>Fluvastatin</td>
<td>-</td>
<td>40 mg**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pitavastatin</td>
<td>-</td>
<td>2–4 mg</td>
<td>1 mg</td>
<td>-</td>
</tr>
</tbody>
</table>

### NICE lipids comparison

<table>
<thead>
<tr>
<th></th>
<th>Low intensity</th>
<th>Medium intensity</th>
<th>High intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluvastatin 20 mg</td>
<td>Atorvastatin 10mg</td>
<td>Atorvastatin 20mg</td>
<td></td>
</tr>
<tr>
<td>Fluvastatin 40 mg</td>
<td>Fluvastatin 80 mg</td>
<td>Atorvastatin 40 mg</td>
<td></td>
</tr>
<tr>
<td>Pravastatin 5 mg</td>
<td>Rosuvastatin 5 mg</td>
<td>Atorvastatin 80 mg</td>
<td></td>
</tr>
<tr>
<td>Pravastatin 10 mg</td>
<td>Simvastatin 20 mg</td>
<td>Rosuvastatin 10 mg</td>
<td></td>
</tr>
<tr>
<td>Pravastatin 20 mg</td>
<td>Simvastatin 40 mg</td>
<td>Rosuvastatin 20 mg</td>
<td></td>
</tr>
<tr>
<td>Pravastatin 40 mg</td>
<td>Simvastatin 80 mg</td>
<td>Rosuvastatin 40 mg</td>
<td></td>
</tr>
<tr>
<td>Simvastatin 10 mg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

>50%  30-50%  <30%  <30%  31 - 40%  >40%

Stone NJ et al; Circ 2014; 129 : S1-S45;  
Rabar S et al; BMJ 2014; 349 :g4356
NICE –CG 181 Continuum of CVD Risk and its treatment

- **Acute coronary syndrome (ACS)**
- **Post MI/Angina**
- **Other Atherosclerotic Manifestations**
  - Subclinical Atherosclerosis: Type 2 diabetes
  - Multiple RFs QRISK>10%
- **Low Risk**

![Pyramid Diagram]

- **Secondary Prevention**
  - Atorva 80mg (+ Eze 10mg)
  - Atorva 80mg
- **Primary Prevention**
  - Atorva 20+ mg
  - Lifestyle then Atorva 20mg
- **Lifestyle**

*Courtesy of CD Furberg.; modified to include NICE CG181*
Secondary Prevention (including ACS)

• Start statin treatment with atorvastatin 80 mg.
  – Use a lower dose of atorvastatin if any of the following apply:
    • potential drug interactions
    • high risk of adverse effects
    • patient preference

• Do not delay statin treatment in secondary prevention to manage modifiable risk factors

• If a person has acute coronary syndrome, do not delay statin treatment.
  • Take a lipid sample on admission and about 3 months after the start of treatment
## Statin interventions

<table>
<thead>
<tr>
<th></th>
<th>Active treatment</th>
<th>Control</th>
<th>Relative risk</th>
<th>Absolute Effect (per thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statin vs placebo</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CVD mortality</strong></td>
<td>2347/59459 (3.9%)</td>
<td>2882/59459 (4.8%)</td>
<td>0.81 (0.77-0.86)</td>
<td>-9 (-7 to -11)</td>
</tr>
<tr>
<td><strong>Non-fatal MI</strong></td>
<td>1593/45915 (3.5%)</td>
<td>2318/45567 (5.1%)</td>
<td>0.69 (0.65-0.73)</td>
<td>-16 (-14 to -18)</td>
</tr>
<tr>
<td><strong>Stroke</strong></td>
<td>1456/54602 (2.7%)</td>
<td>1867/54642 (3.4%)</td>
<td>0.78 (0.73-0.83)</td>
<td>-8 (-6 to -9)</td>
</tr>
</tbody>
</table>

| **Statin : High intensity vs. moderate intensity** |                  |               |               |                                |
| **CVD mortality**         | 972/17730 (5.5%) | 1026/17720 (7.0%) | 0.95 (0.87-1.03) | -3 (-8 to +2) |
| **Non-fatal MI**          | 1058/17730 (6.0%) | 41247/17720 (2.8%) | 0.79 (0.67-0.93) | -13 (-4 to -20) |
| **Stroke**                | 388/12735 (3.0%) | 439/12714 (3.5%) | 0.88 (0.77-1.01) | -4 (0 to -8) |

Rabar S et al; BMJ 2014; 349 :g4356
Predicting the best statin to use

Trials = 135; n = 246955

Naci H et al; Circ CV Qual Outcome 2013; 6: 390
Primary Prevention

• Discuss the benefits of lifestyle modification and optimise the management of all other modifiable CVD risk factors if possible

• If lifestyle modification is ineffective or inappropriate offer statin treatment after repeating risk assessment

• Offer atorvastatin 20 mg to people who have a 10% or greater 10-year risk of developing CVD (QRisk2)

• For people 85 years or older consider atorvastatin 20 mg as statins may be of benefit in reducing the risk of non-fatal myocardial infarction
**JUPITER**

Primary Trial Endpoint: MI, Stroke, UA/Revascularization, CV Death

Ridker PM et al; NEJM 2008; 359; 2195

Moderate Framingham CVD risk ~17% & hsCRP>2 mg/dL

HR 0.56, 95% CI 0.46-0.69
P < 0.00001

QRISK 2
Male = 15%
Female = 10%

Placebo 251 / 8901

- 44%

142 / 8901

NNT(MI, CVA & PCI)-5yr = 25
NNT(MI & CVA only)-5yr = 50

N=17802
Type II diabetes

• Offer atorvastatin 20 mg for the primary prevention of CVD to people with type2 diabetes who have a 10% or greater 10-year risk of developing CVD

• Estimate the level of risk using the QRISK2 assessment tool.
Type 1 Diabetes

• Consider statin treatment for the primary prevention of CVD in all adults with type 1 diabetes

• Offer statin treatment for the primary prevention of CVD to adults with type 1 diabetes who:
  – are older than 40 years or
  – have had diabetes for more than 10 years or
  – have established nephropathy

• Start treatment for adults with type 1 diabetes with atorvastatin 20 mg
CKD

• Offer atorvastatin 20 mg for the primary or secondary prevention of CVD to people with CKD

• Increase the dose if
  – Multiple other CVD risk factors
  – <40% reduction in nonHDL-C is achieved and eGFR is >30 ml/min/1.73 m²

• Agree the use of higher doses with a renal specialist if eGFR is <30 ml/min/1.73 m²
Monitoring and Dose Escalation

- Measure TC, HDL-C and nonHDL-C in all people who have been started on high-intensity statin treatment at 3 months
  - **aim for >40% reduction in nonHDL-C**

- If <40% reduction in nonHDL-C:
  - discuss adherence and timing of dose
  - optimise adherence to diet and lifestyle measures
  - consider increasing the dose if started on less than atorvastatin 80 mg and the person is judged to be at higher risk because of co-morbidities, risk score or clinical judgement
Advice to patients

• Benefits of therapy....
  – Need for chronic treatment

• When to take
  – Does not matter

• Common side effects and what to do about them
  – Muscle aches; liver enzymes

• Drug / food interactions
  – Grapefruit juice

• What monitoring to expect
  – Repeat blood tests

• Address any concerns they have about statins.... ‘The Daily Mail effect’
Lipid monitoring

- LFTs
  - Check transaminase after 3 months then yearly

- No need for CK unless symptomatic
  - Do not offer statin if CK >1000iu/L (5 x ULN)

- Check glucose if new on statin and high risk for DM. Do not stop statin therapy if glucose increases.

- Check adherence etc if non-HDL-C response <40%

- Statin intolerance
  - Any dose statin reduces CVD
  - Reduce dose; switch intensity class; consult specialist
Muscle Pain with statins

- 87% people on statins complain of muscle pain ...... BUT

- 85% of people not on statins complain of muscle pain

*JAMA Intern Med. 2013;173(14):1318-1326*
Creatine Kinase

• Before offering a statin,
  – ask the person if they have had persistent generalised unexplained muscle pain,
  – whether associated with previous lipid-lowering therapy

• If they have, measure CK levels.
  – If CK levels are more than 5 x ULN,
    • re-measure CK after 7 days.
    • If still 5 times the ULN, do not start statin treatment.
  – If CK levels are raised but < 5 X ULN  start
    • start statin treatment at a lower dose
Intolerance

• If a person is not able to tolerate a high-intensity statin aim to treat with the maximum tolerated dose
• Tell the person that any statin at any dose reduces CVD risk. If someone reports adverse effects when taking high-intensity statins discuss the following possible strategies with them:
  – stopping the statin and trying again when the symptoms have resolved to check if the symptoms are related to the statin
  – reducing the dose within the same intensity group
  – changing the statin to a lower intensity group
• Seek specialist advice about options for treating people at high risk of CVD who are intolerant to 3 different statins
Secondary Drug Interventions

- **Bile acid sequestrants**
  - Weak monotherapy evidence on CVD
  - No combination evidence with statins
  - Do not use

- **Fibrates**
  - Meta-analysis: moderate monotherapy benefit
  - Meta-analysis: No combination therapy benefit
  - No routine use (i.e. 2nd/3rd line)

- **Niacin**
  - Weak monotherapy evidence
  - Meta-analysis: no combination therapy benefit
  - AE Meta-analysis: excess DM; myositis; infection
  - Do not use

- **Omega-3 Fatty acids**
  - Mixed diet and supplement trials. Multiple supplement trials used
  - Meta-analysis: no combination therapy benefit
  - Do not use
Ezetimibe

• People with primary hypercholesterolaemia should be considered for ezetimibe treatment in line with NICE TA 132: Ezetimibe for the treatment of primary (heterozygous familial and non-familial) hypercholesterolaemia
IMPROVE-IT: Ezetimibe in ACS
Primary Endpoint — ITT

HR 0.936 CI (0.887, 0.988)
p=0.016

Simva — 34.7%
2742 events

EZ/Simva — 32.7%
2572 events

NNT including PCI = 50

Effects larger in elderly & Type 2 DM

CVD death, MI, UAS, CVA & PCI (≥30 days)

Cannon CP et al; NEJM 2015; 372 : 2387
## New Guidelines

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Lipid measurements</strong></td>
<td><strong>Lipid measurements</strong></td>
</tr>
<tr>
<td>- as now</td>
<td>- Non-fasting</td>
</tr>
<tr>
<td>- LDL-C retained</td>
<td>- Use of non-HDL-C</td>
</tr>
<tr>
<td><strong>Secondary prevention</strong></td>
<td><strong>Secondary prevention</strong></td>
</tr>
<tr>
<td>- Atorvastatin &gt;40mg</td>
<td>- Atorvastatin 80mg</td>
</tr>
<tr>
<td><strong>Primary Prevention &amp; DM</strong></td>
<td><strong>Primary Prevention &amp; DM</strong></td>
</tr>
<tr>
<td>- Atorvastatin 20mg</td>
<td>- Atorvastatin 20mg</td>
</tr>
<tr>
<td><strong>No targets</strong></td>
<td><strong>No targets</strong></td>
</tr>
<tr>
<td><strong>Monitoring reduced</strong></td>
<td><strong>Monitoring reduced</strong></td>
</tr>
<tr>
<td><strong>New risk calculator</strong></td>
<td><strong>New risk calculator</strong></td>
</tr>
<tr>
<td>- ASCVD : 7.5% CVD risk</td>
<td>- QRISK2: 10% risk</td>
</tr>
</tbody>
</table>

Stone NJ et al; Circ 2014; 129: S1-45
Rabar S et al; BMJ 2014; 349: g4356
NICE – CG 181 Continuum of CVD Risk and its treatment

- Acute coronary syndrome (ACS)
- Post MI/Angina
- Other Atherosclerotic Manifestations
  - Subclinical Atherosclerosis: Type 2 diabetes
  - Multiple RFs QRISK > 10%
- Low Risk

Secondary Prevention

Primary Prevention

Atorva 80mg

Lifestyle then Atorva 20mg

Lifestyle

Atorva 80mg (+ Eze 10mg)

Atorva 80mg

Atorva 20+ mg

Lifestyle

Courtesy of CD Furberg.; modified to include NICE CG181
Conclusions

• Updated risk calculation systems
  – QRISK2 better than Framingham in UK
• Fixed doses vs. targets
  – Any statin at any dose better than placebo
  – No role for targets
  – Maximum high efficacy in CVD(+) e.g. atorvastatin 80mg
  – Moderate high efficacy in CVD(-), DM or CKD e.g atorvastatin 20mg
• Role of secondary risk modifiers
  – No evidence for HDL-C or TG modification as yet
• Role of secondary drugs
  – Minimal role for fibrates
  – No role for niacin, resins
  – ?Ezetimibe- IMPROVE-IT (11/14) & rpt NICE TA132
South London Algorithm for Lipid Management for the Primary and Secondary Prevention of CVD
(Adapted from NICE CG181: Lipid Modification July 2014)

Primary CVD prevention including people with type II diabetes
All patients with a CV risk ≥10% without known CVD, or familial hypercholesterolemia
Calculate CV risk using the QRisk2 risk calculator (for all <65 years*, including those with type II diabetes)

If QRisk2 < 10% over the next 10 years
Give lifestyle advice; Ensure regular review of CV risk in line with local guidance

If QRisk2 ≥ 10%** over next 10 years
Reassess CV risk after a trial of lifestyle modification and if QRisk2 remains ≥10% over 10 years OFFER atorvastatin 20mg daily**
If there are potential drug interactions or atorvastatin 20mg is contraindicated or not tolerated, consider a lower dose of atorvastatin or an alternative agent (such as ezetimibe)

> Reinforce lifestyle issues and check adherence to medication
> There are no specific lipid treatment targets for primary prevention, but if patient is considered higher risk due to the presence of multiple cardiovascular risk factors, consider increasing statin dose if necessary to reduce non-HDL cholesterol by 40% from baseline

People with type 1 diabetes
Who:
- Are over 40 years old or
- Have had type 1 diabetes for more than 10 years or
- Have evidence of kidney disease or other CV risk factors

Identify and address all modifiable risk factors: smoking, diet, obesity, alcohol intake, physical activity, blood pressure** and blood glucose / HbA1c

Initiate atorvastatin 20mg daily*** (if potential drug interactions or atorvastatin 20mg is contraindicated or not tolerated, consider a lower dose of atorvastatin or consider an alternative generic agent)

> Once statin therapy has been initiated - repeat lipid profile at 3 months
> Reinforce lifestyle issues and check adherence to medication
> Aim to reduce non-HDL cholesterol by 40% from baseline
  - If baseline cholesterol is unknown, as a minimum, patients should be treated to achieve at least a total cholesterol ≥5mmol/L and non-HDL cholesterol ≥3.6mmol/L
  - Increase statin dose if not achieving adequate reductions in cholesterol (and not already at maximum dose) – seek advice in renal disease
> Consider referral for specialist advice if patients not achieving a 40% fall in non-HDL cholesterol on maximum tolerated dose of statin

Acute coronary syndromes and secondary prevention of CVD
All patients with established CVD or atherosclerotic vascular disease

Initiate atorvastatin 80mg daily*** (if potential drug interactions or atorvastatin 80mg is contraindicated or not tolerated, consider a lower dose of atorvastatin or consider an alternative agent)

> Reinforce lifestyle issues and check adherence to medication
> Patients should be reviewed annually, with lipid monitoring, to check efficacy and ongoing adherence to therapy. Lifestyle issues should be revisited regularly

Note: This guidance applies to new patients and may also be taken into consideration for those already on statins at their annual review. Patients stable on simvastatin do not need to be switched to atorvastatin.

People with chronic kidney disease (CKD)
eGFR < 60ml/kg/min

If statin therapy is contraindicated or not tolerated or not effective, do not offer a fibrate, nicotinic acid or bile acid binder or omega-3 fatty acids to lower CV disease risk.
People with primary hypercholesterolaemia may be considered for treatment with ezetimibe in line with NICE TA 132

*People ≥ 85 years are at high CV risk due to age alone, but consider other CV risk factors, co-morbidities and patient preferences before initiating therapy. ** QRisk2 threshold of 20% applies for the introduction of antihypertensive therapies in patients with hypertension. *** If initial statin dose not tolerated – reduce to maximum tolerated dose.