Description
F₂-IsoPs, prostaglandin-like compounds formed from the free radical-mediated oxidation of arachidonic acid, are the ‘gold standard’ for measuring oxidative stress in the body. F₂-IsoPs also have potent biological effects associated with inflammation and therefore may mediate chronic disease initiation and progression. Additionally, F₂-IsoPs may also act as potent vasoconstrictors via thromboxane formation in the endothelium, and promote platelet activation resulting in thrombus formation.

Clinical Use
The F₂-IsoPs test may be performed on individuals at risk of future cardiovascular disease due to lifestyle risks, or those with a family history of cardiovascular disease.

Clinical Significance
- Elevated levels of urinary F₂-IsoPs are seen in conditions associated with increased risk for atherosclerosis and certain forms of cancer.
- F₂-IsoPs are elevated in smokers and with increased intake of red meat and are decreased with exercise.
- Lower steady state levels are associated with cardiovascular fitness and reduced risk.

Testing Frequency
The frequency of testing is determined by an individual’s medical history, but may be performed yearly alongside a standard lipid panel in asymptomatic individuals with lifestyle risk factors.

Sample Type
The F₂-IsoPs test should be performed on a urine sample collected in a yellow top tube (without preservative).

Commercial Insurance or Medicare Coverage
Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination) have been established or posted by CMS (Medicare & Medicaid). Guidelines should be reviewed for coverage and limitations. Limited information has been provided by the majority of the larger carriers (Aetna, United HealthCare, Cigna, Blues).

Understanding Medical Necessity
The following ICD-9 codes for F₂-Isoprostanes are listed as a convenience for the ordering practitioner. The ordering practitioner should report the diagnosis code that best describes the reason for performing the test and provide the 4th and 5th ICD-9 digit as appropriate.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Diagnosis Code</th>
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<tbody>
<tr>
<td>Diabetes Mellitus Type II or Unspecified, Not Stated as Uncontrolled</td>
<td>250.00</td>
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<tr>
<td>Diabetes Mellitus Type II or Unspecified, Uncontrolled</td>
<td>250.02</td>
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<tr>
<td>Pure Hypercholesterolemia</td>
<td>272.0</td>
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<td>Mixed Hyperlipidemia</td>
<td>272.2</td>
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<td>Other and Unspecified Hyperlipidemia</td>
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<tr>
<td>Benign Essential Hypertension</td>
<td>401.1</td>
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<tr>
<td>Unspecified Essential Hypertension</td>
<td>401.9</td>
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<tr>
<td>Coronary Atherosclerosis of Unspecified Type of Vessel, Native or Graft</td>
<td>414.00</td>
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<td>Coronary Atherosclerosis of Native Coronary Artery</td>
<td>414.01</td>
</tr>
<tr>
<td>Other Abnormal Blood Chemistry</td>
<td>790.6</td>
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</tbody>
</table>
REFERENCES

8. Tappel A. Heme of consumed red meat can act as a catalyst of oxidative damage and could initiate colon, breast and prostate cancers, heart disease and other diseases. Med Hypotheses. 2007; 68: 562-564.

Assess LDL-C levels.
- If not at goal, consider lipid-lowering therapy, ideally with a statin-based regimen if not contraindicated.

Assess smoking habits.
- NOTE: Smoking cessation is essential as individuals who smoke are increased risk of heart disease and blood clots.

Assess lifestyle habits.
- Consider diet/exercise/weight reduction efforts as appropriate.
- Consider improving cardiovascular conditioning. Individuals who are not conditioned may have increased oxidation, but this will reduce as conditioning improves.
- Consider optimal caloric intake as individuals who exercise a lot may not be taking in enough calories for their activity level. In short, they may be at risk for increased oxidation in their bodies due to lack of nutritional balance.