Mediastinitis. A clinical and economic concern.
Mediastinitis is a serious complication for the patient and surgeon. Its onset has been associated with mortality rates from single digits to over 20%.¹

This complication can be expensive. It is estimated that it can cost more than $50,000 to treat.²

Medicare’s recent decision to stop paying for mediastinitis treatment adds to surgeons’ and hospitals’ pressures. They must control this complication (STS database: 0.8% rate) both clinically and economically.³

### Hypothetical Economic Model: The Heart Center
Utilizing the referenced peer reviewed information, a hypothetical model can be constructed to illustrate the impact on providers:

- The Heart Center performs 1,000 open heart procedures per year.
- The mediastinitis rate at The Heart Center is 0.8%, or 8 patients annually.
- Without Medicare reimbursement, The Heart Center is at risk to provide additional care to patients who develop mediastinitis, at a cost of more than $400,000.

### Local Economic Model
A local model can be constructed as well to illustrate the impact:

- Number of cases per year
- Number at risk for mediastinitis per year (STS database rate), x 0.8%
- Potential exposure without Medicare reimbursement, (x $50,000)

<table>
<thead>
<tr>
<th>Operative cases per year</th>
<th>Mediastinitis risk rate</th>
<th>Potential number of patients</th>
<th>Potential exposure</th>
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Synthes Solutions for Stable Fixation

Synthes has developed several solutions to provide more stable\* sternal fixation compared to traditional cerclage wires. These include the Synthes Modular Sternal Cable System and the Synthes Titanium Sternal Fixation System.

**Synthes Modular Sternal Cable System**

**Indications**
Synthes Sternal Reconstruction System is intended for use in sternal repair and reconstruction.

**Features**
- Flexibility in sternal closure options
- Intraoperative choice depending on patient needs
- Three different fixation configurations

**Synthes Titanium Sternal Fixation System**

**Indications**
The Synthes Sternal Fixation System is intended for use in primary or secondary closure/repair of the sternum following sternotomy or fracture of the sternum to stabilize the sternum and promote fusion.

**Features**
- Plates available in various shapes and sizes
- Emergency pin with quick release mechanism
- Three-dimensional fixation mode

\*Mechanical test data on file at Synthes. Mechanical test results may not necessarily be indicative of clinical performance.

Note: The Titanium Sternal Locking Straight Plate, 13 holes, without pin (460.046), is contraindicated for use in acute cardiac patients.
The Synthes systems offer greater mechanical strength over traditional cerclage wire, as illustrated by the following graph. Anterior/posterior and cranial/caudal shear movements cannot be stabilized by a cable or wire-type fixation system. Only rigid fixation using plates can maintain stabilization in all three planes (tension, anterior/posterior shear and cranial/caudal shear).

**Conclusion**
From a mechanical viewpoint, rigid fixation using plates and screws allows greater stability of the bone segments in all three planes compared to wire.
Construct strength comparison*

Constructs loaded in tension in lateral direction. All tests were performed on 10 mm thick composite polyurethane foam test blocks composed of an inner (cancellous) core of 5 lb/ft³ polyurethane foam with a 1.25 mm thick (cortical) shell of 10 lb/ft³ polyurethane foam laminated to the exterior.

*Mechanical test data on file at Synthes.
Mechanical test results may not necessarily be indicative of clinical performance.


4. Synthes Internal Mechanical Testing