myocardial infarction, stent thrombosis, TVR).

**Results:** The DES and BMS groups were well matched except that DES patients received dual antiplatelet therapy for a longer period and smaller final vessel diameter. In survival analysis, at a mean follow-up of 1333 ± 659 days after PCI, the DES group had similar incidence of death/myocardial infarction (24 vs 27%, log rank p=0.23) and stent thrombosis (4.0 vs 2.6%, p=0.18) as the BMS group. The DES patients had lower incidence of TVR (8.1 vs 17%, p=0.0018) but similar MACE (26 vs 37%, p=0.31). In multivariable analysis, DES vs BMS implantation showed no significant impact on death/myocardial infarction [adjusted hazards ratio (HR) 1.0, 95% confidence intervals (CI) 0.7-1.4], stent thrombosis (HR 1.7; CI 0.7-4.0), or MACCE (HR 0.8; CI 0.6-1.1). However, TVR was lower in the DES group (HR 0.4; CI 0.3-0.7).

**Conclusion:** In patients presenting with NSTEMI, DES implantation appears to be as safe as BMS implantation at long-term follow up.

**TCT-222**

**Evolvulo-metal eluting stents show no stent thrombosis with similar one year outcomes compared with 1st and 2nd generation drug-eluting stents for the treatment of ST-segment elevation myocardial infarction**

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Background: There were no published data regarding the clinical efficacy and safety of second generation drug-eluting stent (everolimus-eluting stent, EES) following primary percutaneous coronary intervention (PCI) in ST-elevation myocardial infarction (STEMI). We evaluated the one-year outcome of everolimus-eluting stent versus to 1st generation (sirolimus-eluting stent, SES and paclitaxel-eluting stent, PES) and 2nd generation (zotalimus-eluting stent) drug-eluting stents(DES) for the treatment of STEMI.

**Methods:** A prospective, open-label, multi-center cohort has been performed at 4 centers in Korea. All patients will be clinically followed-up for two years. The primary endpoint was major adverse cardiac event (MACE): the composite of cardiac death (CD), recurrent MI and ischemia-driven target vessel revascularization (TVR) at 1 year. Death/thrombosis (ST) by ARC definition were analyzed.

**Results:** Total 797 patients (EES=197, ZES=203, SES=203, PES=194) who were completed more than one year were analyzed. One-year MACE were 2.0%, 5.9%, 3.4% and 5.7% in EES-, ZES-, SES- and PES-group, respectively (p=ns). ST was 0%, 2.0%, 2.0% and 2.0% in EES-, ZES-, SES- and PES-group, respectively (p=ns).

**Clinical events at 12 months and stent thrombosis**

- **MACCE:** 2.0% + 0.6%
- **TVR:** 2.9% + 1.6%
- **Death:** 5.7% + 3.4%
- **Cardiac death:** 5.9% + 5.7%
- **Non-cardiac death:** 0.6% + 0.6%
- **Non-cardiac death:** 0.6% + 0.6%
- **Ischemic events:** 0.5% + 0.5%
- **Repeat revascularization:** 1.6% + 1.6%
- **Repeat revascularization:** 1.6% + 1.6%
- **TVR + repeat revascularization:** 3.5% + 3.0%
- **TVR + repeat revascularization:** 3.5% + 3.0%
- **Complete revascularization rate:** 13.7% + 13.7%
- **Complete revascularization rate:** 13.7% + 13.7%
- **TVR + repeat revascularization:** 3.5% + 3.0%
- **TVR + repeat revascularization:** 3.5% + 3.0%


**Conclusion:** Compared to 1st and 2nd generation DES (SES and PES, ZES), EES showed similar one-year clinical outcomes in terms of MACE in patients with STEMI compared to 1st and 2nd generation DES (SES and PES, ZES), EES.

**TCT-223**

**Complete Revascularization and Clinical Outcomes of Patients with Multivessel Disease**

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1Cardiology, Gil Medical Center, Incheon, Republic of Korea; 2Gachon University of Medicine and Science, Incheon, Republic of Korea

Background: Treatment of STEMI.

**Methods:** We evaluated the one-year outcome of everolimus-eluting stent versus to 1st generation (sirolimus-eluting stent, SES and paclitaxel-eluting stent, PES) and 2nd generation (zotalimus-eluting stent) drug-eluting stents(DES) for the treatment of STEMI.

**Results:** Total 797 patients (EES=197, ZES=203, SES=203, PES=194) who were completed more than one year were analyzed. One-year MACE were 2.0%, 5.9%, 3.4% and 5.7% in EES-, ZES-, SES- and PES-group, respectively (p=ns). ST was 0%, 2.0%, 2.0% and 2.0% in EES-, ZES-, SES- and PES-group, respectively (p=ns).

**Clinical events at 12 months and stent thrombosis**

- **MACCE:** 2.0% + 0.6%
- **TVR:** 2.9% + 1.6%
- **Death:** 5.7% + 3.4%
- **Cardiac death:** 5.9% + 5.7%
- **Non-cardiac death:** 0.6% + 0.6%
- **Non-cardiac death:** 0.6% + 0.6%
- **Ischemic events:** 0.5% + 0.5%
- **Repeat revascularization:** 1.6% + 1.6%
- **Repeat revascularization:** 1.6% + 1.6%
- **TVR + repeat revascularization:** 3.5% + 3.0%
- **TVR + repeat revascularization:** 3.5% + 3.0%
- **Complete revascularization rate:** 13.7% + 13.7%
- **Complete revascularization rate:** 13.7% + 13.7%
- **TVR + repeat revascularization:** 3.5% + 3.0%
- **TVR + repeat revascularization:** 3.5% + 3.0%


**Conclusion:** Compared to 1st and 2nd generation DES (SES and PES, ZES), EES showed similar one-year clinical outcomes in terms of MACE in patients with STEMI following primary PCI and no stent thrombosis.

**TCT-224**

**Coating irregularities of drug-eluting stents as assessed by scanning electron microscopy**

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**Background:** Implantation of drug eluting stents (DES) tends to be implanted in complex lesion compared with bare metal stents era. Preservation of integrity of polymer coating in these complex lesions is an important.

**Methods:** Taxus LibertéTM, Endeavor Xience VTm, Cypher SelectTM and NoboriTM DES (five samples of each) were explored by scanning electron microscopy (SEM) following expansion at nominal pressure. In addition to simple expansion, a part of samples were tasked through the 5 or 6 French catheter with a parallel wire in order to stimulate the injury. We classified DES coating damage into four groups which were irregularities (Type I), cracks (Type II), craters with metal exposure (Type III) and webbings (Type IV). Each DES showed specific feature of abnormalities in polymer coating such as webbing in Taxus LibertéTM, craters in Endeavor Xience VTm and minor cracks in NoboriTM.

**Results:** After the injuries, craters with metal exposure were slightly increased in NoboriTM, Xience VTm, while it was largely increased in Endeavor SprintTM. The damage of polymer coating by the creation of injury was minimal Taxus LibertéTM. The craters with metal exposure were seen in all types of DES. Among them, the incidence of areas with bare metal exposure was particularly low in NoboriTM, Xience VTm and Cypher SelectTM. Endeavor SprintTM showed the largest metal exposure with scratch. Webbings of the coating were found in Taxus LibertéTM, while they were not seen in Endeavor SprintTM.

**Conclusion:** The incidence of various coating irregularities in different types of DES varied widely. These data give us insight into the choice of DES especially in complex lesions.
for clinical characteristics, Xience stent utilization was no longer associated with improved outcome.

**Conclusion:** The use of Xience in routine clinical practice is both safe and effective and has borderline clinical advantage over first-generation stents.

**TCT-226**

Five Year Survival After Percutaneous Coronary Intervention With Drug Eluting Stents And Bare Metal Stents In All-Comers. A New Jersey Statewide Database Study

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**Background:** Drug eluting stents (DES) have been shown to significantly decrease restenosis with subsequent need for lesion and/or vessel revascularization when compared with bare metal stents (BMS) in selected patient groups in randomized trials and in observational registries. If their use in all-comers is also associated with a survival benefit over a longer follow-up is controversial.

**Methods:** We used the Myocardial Infarction Data Acquisition System (MIDAS), a New Jersey statewide database, to examine the mortality of 37,812 patients (pts) who underwent PCI (emergency or elective) with a single stent, either BMS (n=14,939) or DES (n=22,873) from 2003 to 2004, with follow-up of 60 months.

**Results:** The total mortality and the cardiovascular death were significantly lower (13.63% vs. 18.67%; \( p<0.0001 \)) and (5.85% vs. 9.17%; \( p<0.0001 \)) respectively among patients who received DES compared to BMS. After adjusting for baseline characteristics such as age, sex, race, diabetes, hypertension, renal disease, anemia, cancer, cerebrovascular disease and left ventricular dysfunction the benefits associated with DES persisted; the hazard ratios for total mortality and cardiovascular mortality were 0.78 (95% CI 0.73 to 0.89; \( p<0.0001 \)) and 0.77 (95% CI 0.67 to 0.89; \( p=0.0004 \)) respectively.

**Conclusion:** In this population based observational study, patients who received DES had significantly lower 5 year total and cardiovascular mortality than those who received BMS.

**TCT-227**

Validation of Age, Creatinine, and Ejection Fraction Score As a Risk Assessment Tool In Patients Undergoing Stent Implantation During Percutaneous Coronary Intervention. A Report from the Dynamic Registry of the National Heart, Lung, and Blood Institute

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**Background:** Previous studies have demonstrated the potential utility of the age, creatinine, and ejection fraction (ACEF) score [age/(left ventricular ejection fraction + 1, if creatinine > 2.0 mg/dL)] to assess the risk of mortality and myocardial infarction (MI) 1 year after percutaneous coronary intervention (PCI). However, this score has not been extensively validated in patients undergoing PCI in routine clinical practice. Therefore, we sought to investigate if the ACEF score would predict adverse events in patients undergoing contemporary PCI.

**Methods:** A total of 2779 patients, who received at least one stent during PCI and of whom data was available to calculate the ACEF score, were selected from Waves 4 (2004) and 5 (2006) of the NHLBI Dynamic Registry. The in-hospital and 3-year outcomes (mortality and MI) were prospectively collected from Waves 4 (2004) and 5 (2006) of the NHLBI Dynamic Registry. The in-hospital and 3-year cumulative mortality by ACEF tercile.

**Conclusion:** The ACEF score may serve as a risk assessment tool for mortality after PCI. Future studies are needed to better determine the use of ACEF score in routine clinical practice.

**TCT-228**

Four-year Follow-up of the SYNTAX Trial: Optimal Revascularization Strategy in Patients with Three-vessel Disease and/or Left Main Disease

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1Mayo Clinic, Rochester, MN; 2Cardiac & Vascular Research Center of Northern Michigan, Petosky, MI; University Hospital Uppsala, Uppsala, Sweden; 3Institut Hospitalier Jacques Cartier, Maisy, France; 4Heart Hospital Baylor Plano, Dallas, TX; 5Evaston Hospital, Evanston, IL; Erasmus University Medical Center Rotterdam, Rotterdam, Netherlands; 6San Raffaele Scientific Institute, Milan, Italy; 7Boston Scientific Corporation, Natick, MA, 8Herzzentrum Universität Leipzig, Leipzig, Germany

**Background:** The SYNTAX trial was designed to compare percutaneous coronary intervention (PCI) with paclitaxel-eluting TAXUS Express stents versus coronary artery bypass surgery (CABG) for the treatment of 3-vessel (3VD) and/or left main coronary disease (LM). This analysis compares outcomes at 4 years.

**Methods:** SYNTAX is a randomized clinical trial with nested registries. A cardiac surgeon and interventional cardiologist screened consecutive patients with de novo 3VD and/or LM disease. The patient was randomized if amenable for equivalent revascularization with both treatments; otherwise, they were enrolled in a nested registry.

**Results:** At 1 year, MACCE and repeat revascularization were significantly higher in the PCI group. The rate of death/stroke/MI was similar between groups. After 3 years of follow-up, MACCE, repeat revascularization, MI and cardiac death were significantly increased in the PCI arm (Table). Death/stroke/MI and stroke were similar between the groups at 3 years (Table). MACCE at 3 years was similar between treatment arms in patients with low/intermediate SYNTAX Scores but significantly increased in PCI patients with high SYNTAX Scores. The full 4 year results will be available at the time of presentation.

**Adverse Event Rates in the Overall Randomized Controlled Trial Cohort at 3 years**

<table>
<thead>
<tr>
<th></th>
<th>CABG</th>
<th>PCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACCE</td>
<td>20.2</td>
<td>28.9</td>
</tr>
<tr>
<td>Death/Stroke/MI</td>
<td>12.0</td>
<td>14.1</td>
</tr>
<tr>
<td>Cardiac Death</td>
<td>3.6</td>
<td>6.0</td>
</tr>
</tbody>
</table>

**Conclusion:** The ACEF score may serve as a risk assessment tool for mortality after PCI. Future studies are needed to better determine the use of ACEF score in routine clinical practice.