**Metaanalysis – Systematic Review**

**Potential PURL Review Form**

**PURL Jam Version**

**Version #12 Sept 21, 2010**

**Prescribing statins for patients with ACS? No need to wait**

***J Fam Pract*. 2014;63:735,738.**

**PURLs Surveillance System**

**Family Physicians Inquiries Network**

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| **SECTION 1: Identifying Information for Nominated Potential PURL** **[to be completed by PURLs Project Manager]** |
| **1.** Citation  | Navarese EP, Kowalewski M, Andreotti F, van Wely M, Camaro C, Kolodziejczak M, Gorny B, Wirianta J, Kubica J, Kelm M, de Boer MJ, Suryapranata H. Meta-analysis of time-related benefits of statin therapy in patients with acute coronary syndrome undergoing percutaneous coronary intervention. *Am J Cardiol*. 2014 May 15;113(10):1753-1764. doi: 10.1016/j.amjcard.2014.02.034. Epub 2014 Mar 2. Review. PubMed PMID: 24792742. |
| **2.** Hypertext link to PDF of full article  | http://www.ncbi.nlm.nih.gov/pubmed/?term=24792742 |
| **3.** First date published study available to readers  | 5/15/14 |
| **4.** PubMed ID  | 24792742 |
| **5.** Nominated By  | Jim Stevermer Other:  |
| **6.** Institutional Affiliation of Nominator  | University of Missouri Other:  |
| **7.** Date Nominated  | 5/24/14 |
| **8.** Identified Through  | Evidence Updates Other:  |
| **9.** PURLS Editor Reviewing Nominated Potential PURL | Kate Rowland |
| **10.** Nomination Decision Date  | 5/30/14 |
| **11.** Potential PURL Review Form (PPRF) Type  | Meta-analysis |
| **12.** Other comments, materials or discussion  |  |
| **13.** Assigned Potential PURL Reviewer  | Sonia Oyola |
| **14.** Reviewer Affiliation  | University of Chicago Other:  |
| **15.** Date Review Due  | 6/26/14 |
| **16.** Abstract  | Patients with acute coronary syndromes (ACSs) still experience high rates of recurrent coronary events, particularly, early in their presentation. Statins yield substantial cardiovascular benefits, but the optimal timing of their administration, before or after percutaneous coronary intervention (PCI), remains unclear. We aimed to perform a meta-analysis of randomized controlled trials of statin administration before or after PCI versus no statin or low-dose statin in patients with ACS. Primary end points were 30-day all-cause mortality and 30-day myocardial infarction (MI) stratified by pre- and post-PCI statin administration. Secondary end points were major adverse cardiac events (MACEs) or major adverse cardiac and cerebrovascular events (MACCEs). Long-term analysis beyond 30 days was also performed. Twenty randomized controlled trials enrolling 8750 patients were included. At 30 days, the rate of MI was significantly lower in the statin group (odds ratio [OR] 0.67, 95% confidence interval [CI] 0.53-0.84, p=0.0007) with a trend toward reduced mortality (p=0.06) and significant reductions in MACE and MACCE compared with no or low-dose statin. The 30-day incidence of MI was markedly lower when statins were administered before PCI (OR 0.38, 95% CI 0.24-0.59, p<0.0001) rather than after PCI (p=0.28). The direction and magnitude of the estimates for before and after PCI versus no statin or low-dose statin were sustained at long term, not reaching statistical significance for MI (OR 0.81, 95% CI 0.65-1.01, p=0.06) but with significant reductions in MACE (p=0.0002). By meta-regression, earlier statin administration correlated significantly with lower risk of MI, MACE, and MACCE at 30 days. In conclusion, the present meta-analysis indicates a time-related impact of statin therapy on clinical outcomes of patients with ACS undergoing PCI: the earlier the administration before PCI, the greater the benefits. |
| **17.** Pending PURL Review Date |  |
| **sECTION 2: Critical Appraisal of Validity****[to be completed by the Potential PURL Reviewer]** |
| **1.** What types of studies are included in this review? | RCT Other:  |
| **2.** What is the key question addressed by this review? Summarize the main conclusions and any strengths or weaknesses. | Does timing of statin initiation (before or after percutaneous coronary intervention) in patients with ACS make a difference in mortality, MI and major cardiac and cerebrovascular events?Conclusion: The 30-day incidence of MI was markedly lower when statins were administered before PCI (OR 0.38, 95% CI 0.24-0.59, p<0.0001) rather than after PCI (p=0.28). The direction and magnitude of the estimates for before and after PCI versus no statin or low-dose statin were sustained at long term, not reaching statistical significance for MI (OR 0.81, 95%CI 0.65-1.01, p=0.06) but with significant reductions in MACE (p=0.0002). By meta-regression, earlier statin administration correlated significantly with lower risk of MI, MACE, and MACCE at 30 days. |
| **3.** Study addresses an appropriate and clearly focused question - ***select one*** | [x]  Well covered [ ]  Not addressed[ ]  Adequately addressed [ ]  Not reported[ ]  Poorly addressed [ ]  Not applicableComments:  |
| **4.** A description of the methodology used is included. | [x]  Well covered [ ]  Not addressed[ ]  Adequately addressed [ ]  Not reported[ ]  Poorly addressed [ ]  Not applicableComments: Thorough literature search, included were randomized controlled trials, intention to treat, ORs and 95% CI, pooled ORs calculated with fixed-effect, publication bias assessed constructing a funnel plot, sensitivity analysis |
| **5.** The literature search is sufficiently rigorous to identify all the relevant studies. | [x]  Well covered [ ]  Not addressed[ ]  Adequately addressed [ ]  Not reported[ ]  Poorly addressed [ ]  Not applicableComments: |
| **6.** Study quality is assessed and taken into account. | [x]  Well covered [ ]  Not addressed[ ]  Adequately addressed [ ]  Not reported[ ]  Poorly addressed [ ]  Not applicableComments: validity of each study assessed by 2 unblinded investigators (concealed allocation, blinding, data reporting) |
| **7.** There are enough similarities between selected studies to make combining them reasonable. | [x]  Well covered [ ]  Not addressed[ ]  Adequately addressed [ ]  Not reported[ ]  Poorly addressed [ ]  Not applicableComments:  |
| **8.** Are patient oriented outcomes included? If yes, what are they? | Yes: mortality, MI, major cardiac and cerebrovascular events |
| **9.** Are adverse effects addressed? If so, how would they affect recommendations? | No |
| **10.** Is funding a potential source of bias? If yes, what measures (if any) were taken to insure scientific integrity?  | Does not appear so |
| **11.** To which patients might the findings apply? Include patients in the meta-analysis and other patients to whom the findings may be generalized. | Any patient with an ACS undergoing a PCI |
| **12.** In what care settings might the findings apply, or not apply? | Inpatient |
| **13.** To which clinicians or policy makers might the findings be relevant? | Primary care physicians and cardiologists providing inpatient care |
| **SECTION 3: Review of Secondary Literature****[to be completed by the Potential PURL Reviewer]** |
| **Citation Instructions** | For UpTo Date citations, use style modified from <http://www.uptodate.com/home/help/faq/using_UTD/index.html#cite> & AMA style. Always use Basow DS as editor & current year as publication year.EXAMPLE: Auth I. Title of article. {insert author name if given, & search terms or title.} In: Basow DS, ed. UpToDate [database online]. Waltham, Mass: UpToDate; 2009. Available at: <http://www.uptodate.com>.  {Insert dated modified if given.} Accessed February 12, 2009. {whatever date PPRF reviewer did their search.}For DynaMed, use the following style:Depression: treatment {insert search terms or title}. In: DynaMed [database online]. Available at: <http://www.DynamicMedical.com>. Last updated February 4, 2009. {Insert dated modified if given.}  Accessed June 5, 2009.{search date} |
| **1.** DynaMed excerpts |  |
| **2.** DynaMed citation/access date | Title. Author. In: DynaMed [database online]. Available at: [www.DynamicMedical.com](http://www.DynamicMedical.com) Last updated: June 18, 2014. Accessed June 26, 2014 |
| **3.**  Bottom line recommendation or summary of evidence from DynaMed (1-2 sentences) |  |
| **4.** UpToDate excerpts |   |
| **5.** UpToDate citation/access date | Always use Basow DS as editor & current year as publication year.Title. Overview of the acute management of ST elevation myocardial infarction Author. Reeder et al In: UpToDate [database online]. Available at: <http://www.uptodate.com>. Last updated: May 2014. Accessed: June 2014 |
| **6.**  Bottom line recommendation or summary of evidence from UpToDate (1-2 sentences) | Statin therapy — Intensive statin therapy should be initiated as early as possible in all patients with STEMI [28,29]. |
| **7.** PEPID PCP excerpts[www.pepidonline.com](http://www.pepidonline.com)username: fpinauthorpw: pepidpcp | None |
| **8.** PEPID citation/access data | Author. Title. In: PEPID [database online]. Available at: <http://www.pepidonline.com>. Last updated:. Accessed |
| **9.** PEPID content updating | 1. Do you recommend that PEPID get updated on this topic?[x]  Yes, there is important evidence or recommendations that are missing[ ]  No, this topic is current, accurate and up to date.If yes, which PEPID Topic, Title(s): Acute Coronary Syndrome2. Is there an EBM Inquiry (HelpDesk Answers and Clinical Inquiries) as indicated by the EB icon () that should be updated on the basis of the review?[ ]  Yes, there is important evidence or recommendations that are missing[ ]  No, this topic is current, accurate and up to date.If yes, which Evidence Based Inquiry (HelpDesk Answer or Clinical Inquiry), Title(s): |
| **10.** Other excerpts (USPSTF; other guidelines; etc.) |  |
| **11.** Citations for other excerpts |  |
| **12.**  Bottom line recommendation or summary of evidence from Other Sources (1-2 sentences) |  |
| **SECTION 4: Conclusions** **[to be completed by the Potential PURL Reviewer]** **[to be revised by the Pending PURL Reviewer as needed]** |
| **1.** **Validity:** How well does the study minimize sources of internal bias and maximize internal validity? | Give one number on a scale of 1 to 7(1=extremely well; 4=neutral; 7=extremely poorly)[x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7  |
| **2.** If 4.1 was coded as 4, 5, 6, or 7, please describe the potential bias and how it could affect the study results. Specifically, what is the likely direction in which potential sources of internal bias might affect the results? |  |
| **3. Relevance:** Are the results of this study generalizable to and relevant to the health care needs of patients cared for by “full scope” family physicians?  | Give one number on a scale of 1 to 7(1=extremely well; 4=neutral; 7=extremely poorly)[x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7  |
| **4.** If 4.3 was coded as 4, 5, 6, or 7,lease provide an explanation. |  |
| **5. Practice changing potential:** If the findings of the study are both valid and relevant, does the practice that would be based on these findings represent a change from current practice? | Give one number on a scale of 1 to 7(1=definitely a change from current practice; 4=uncertain; 7=definitely not a change from current practice)[ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7  |
| **6.** If 4.5 was coded as 1, 2, 3, or 4, please describe the potential new practice recommendation. Please be specific about what should be done, the target patient population and the expected benefit. |  |
| 1. **Applicability to a Family Medical Care Setting:**

Is the change in practice recommendation something that could be done in a medical care setting by a family physician (office, hospital, nursing home, etc), such as a prescribing a medication, vitamin or herbal remedy; performing or ordering a diagnostic test; performing or referring for a procedure; advising, educating or counseling a patient; or creating a system for implementing an intervention? | Give one number on a scale of 1 to 7(1=definitely could be done in a medical care setting; 4=uncertain; 7=definitely could not be done in a medical care setting) [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7  |
| **8.** If you coded 4.7 as a 4, 5, 6 or 7, please explain.  |  |
| **9. Immediacy of Implementation:**  Are there major barriers to immediate implementation? Would the cost or the potential for reimbursement prohibit implementation in most family medicine practices? Are there regulatory issues that prohibit implementation? Is the service, device, drug or other essentials available on the market? | Give one number on a scale of 1 to 7(1=definitely could be immediately applied; 4=uncertain; 7=definitely could not be immediately applied) [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7  |
| **10.** If you coded 4.9 as 4, 5, 6, or 7, please explain why. |  |
| **11. Clinical meaningful outcomes or patient oriented outcomes:**  Are the outcomes measured in the study clinically meaningful or patient oriented?  | Give one number on a scale of 1 to 7(1=definitely clinically meaningful or patient oriented; 4=uncertain; 7=definitely not clinically meaningful or patient oriented) [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7  |
| **12.** If you coded 4.11 as a 4, 5, 6, or 7, please explain why. |  |
| **13.** In your opinion, is this a Pending PURL? Criteria for a Pending PURL:* Valid: Strong internal scientific validity; the findings appears to be true.
* Relevant: Relevant to the practice of family medicine
* Practice changing: There is a specific identifiable new practice recommendation that is applicable to what family physicians do in medical care settings and seems different than current practice.
* Applicability in medical setting:
* Immediacy of implementation
 | Give one number on a scale of 1 to 7(1=definitely a Pending PURL; 4=uncertain; 7=definitely not a Pending PURL) [x] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7  |
| **14.** Comments on your response in 4.13 |  |