1. This course is designed to review the important ophthalmic literature that was released between October 2013 and November 2014. The focus is on ocular disease.
   a. Will cover 5 main topics
      i. Diabetic macular edema
      ii. Vein occlusions
      iii. Age-related macular degeneration
      iv. Glaucoma
      v. Macular Hole

2. Review important concepts related to reading an article
   a. Recruitment
   b. Statistical vs. clinical significance
   c. Risk reduction (absolute vs. relative) and number needed to treat

3. Diabetic Macular Edema
   a. RESTORE - Ranibizumab 24 month results
      i. After 12 months of treatment, Ranibizumab was given PRN based on set criteria of visual acuity and anatomy
      ii. Medication was safe
      iii. Benefits shown in 12 month study were maintained after 24 months
   b. RISE and RIDE - Ranibizumab 36 month results
      i. 36 month results of Ranibizumab for diabetic macular edema compared to sham
      ii. Both sham and Ranibizumab treatment groups could have rescue laser if needed
      iii. After 2 years, sham patients were eligible for treatment with 0.5mg Ranibizumab. These patients did not do as well as patients treated with Ranibizumab from the start
iv. Previous gains noted at 12 and 24 months were maintained in the group treated with Ranibizumab.

v. 5% of patients treated with 0.5 mg Ranibizumab had CVA compared to 2% in 0.3 mg group.

vi. 6.4% death in 0.5 mg vs. 4.4% in 0.3 mg.

vii. 7.2% had MI in 0.3 mg group vs. 3.6% in 0.5 mg.

4. Branch Retinal Vein Occlusion and Central Retinal Vein Occlusion

   a. RETAIN

      i. 48 month results of Ranibizumab for BRVO and CRVO

         1. This is an extension of the BRAVO and CRUISE trials.

         ii. Patients followed every year for the first year, then quarterly for the second year.

         iii. 80% of patients with BRVO had 20/40 or better acuity at the end of the study.

         iv. Average acuity for CRVO was 20/100 despite treatment. Only 44% of patients showed resolved central retinal fluid with treatment.

   b. GALILEO

      i. 12 month results of Aflibercept for CRVO.

      ii. Aflibercept versus sham.

         1. Each group received an injection every 4 weeks for 20 weeks.

         2. At week 24, sham continued monthly injections while Aflibercept treated patients received PRN injections.

      iii. 60% of patients treated with Aflibercept showed 3-line acuity improvement compared to 32% of sham treated.

      iv. No visual acuity difference was shown between perfused and non-perfused retinas in the Aflibercept treated patients.

      v. The GALILEO study is the same as the COPERNICUS study, except the trial was performed in different regions. GALILEO was in Asia, where COPERNICUS was in the United States.

      vi. Most common side effect was pain.
c. COPERNICUS

   i. 2 year results for Aflibercept for CRVO
   
   ii. Aflibercept versus sham initially. After 24 weeks, then PRN. Sham was eligible for every 4 week injections
   
   iii. 56% (IAI) versus 12% (sham) gain 3 lines of acuity
   
   iv. Delayed Tx was better than no tx but not as good as initial Tx
   
   v. In the first year of the study, NO patients developed NV in the Tx group compared to 6% in sham

       1. After 1 yr, 6% in IAI+sham vs 8% in the sham+IAI PRN

5. Age-Related Macular Degeneration

   a. SEVEN-UP

       i. 7- year results of the ANCHOR, MARINA, HORIZON trials
       
       ii. Treatment of wet AMD with Ranibizumab
       
       iii. 37% of patients were 20/70 or better (main outcome measure) at 7 years
       
       iv. 23% had 20/40 or better acuity
       
       v. 68% still had active exudative disease as measured by OCT
       
       vi. 46% were still receiving injections

   b. VIEW

       i. 2 year results of Aflibercept for wet AMD
       
       ii. Patients received 0.5 mg intravitreal ranibizumab every 4 weeks (Rq4), 2 mg aflibercept every 4 weeks (2q4), 0.5 mg aflibercept every 4 weeks (0.5q4), or 2 mg aflibercept every 8 weeks (2q8) after 3 monthly injections
       
       iii. Outcomes were similar between patients treated with Aflibercept and Ranibizumab
       
       iv. Over 90% of patients maintained acuity
v. Patients treated with 2q8 had the most patients gain 3 lines of acuity (33%)

c. GEFAL non-inferiority trial
   i. 500 patients were randomized 1:1 to receive 3 monthly injections of Ranibizumab or Bevacizumab then PRN dosing for a year
   ii. Average injections were similar in the two groups
   iii. Bevacizumab was noninferior to Ranibizumab
       1. This result is similar to other trials, including CATT

d. COMPLETE
   i. Eculizumab injections for 6 months for 20 patients with geographic atrophy versus placebo for 10 patients
   ii. Systemic complement inhibition
   iii. Well tolerated
   iv. Small enlargement of geographic atrophy in both groups
       1. No Neovascular AMD in either group
   v. No difference in visual acuity

e. HOME Study
   i. Foresee Home Monitoring for development of wet AMD compared with Standard of Care (may or may not include Amsler Grid)
   ii. SOC group noted net 2.5 days later than Home monitor
   iii. More nets found with Home (51) versus 31 SOC
   iv. Sensitivity 80%
   v. 237 false positive visits
   vi. Acuity at presentation worse in SOC group than Home
       1. We don’t know long term outcomes
   vii. Cost is $250 install and $60/mo fee
   viii. All but 1 author were funded by Nortal (makers of Foresee)

6. Glaucoma
a. Ahmed vs. Baerveldt
   i. 3-year results comparing the outcomes of glaucoma surgery with Ahmed versus Bareveldt implant
   ii. Patients were 18 years and older and had failed on maximum medical therapy
   iii. Many patients had failed on trabeculoplasty and/or trabeculectomy also
   iv. The primary outcome measure was failure
      1. This was defined as
         a. IOP outside of target (5-18 mmHg) for 2 consecutive visits after 3 months
         b. Vision threatening complications
         c. Loss of light perception
   v. Both devices were effective in reducing IOP and glaucoma medications.
   vi. 52% of patients in each group experienced post-op complications
   vii. Median post-op acuity of 20/200 at 3 years
   viii. The Baerveldt group had a lower failure rate and required fewer medications than the Ahmed group after 3 years,
   ix. The Baerveldt group experienced more hypotony-related vision-threatening complications.

7. Macular Hole
   a. Trial of 68 patients treated for macular hole with no face-down positioning, broad ILM peeling, and 20% SF₆ gas
   b. Main outcome measures were
      i. Single operation closure rate
      ii. Best Corrected Visual Acuity
      iii. Cataract progression
      iv. IOP
   c. There was a 100% single operation closure rate
   d. Mean BCVA was 20/40 (pre-operative BCVA was 20/100)
e. 87% achieved 20/50 or better acuity

f. Over a mean follow up of 216 days, 78.5% of phakic patients needed cataract extraction.

g. There were no IOP complications past 1-day post operation.