INNOVATIVE OPTOMETRY: LIGHT, TECHNOLOGY, TELEMEDICINE & THE FUTURE

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Symposium Description:
The year 2015 is the International Year of Light, a cross-disciplinary educational and outreach project with more than 100 partners from over 85 countries. The science and applications of light creates revolutionary technologies that directly improve quality of life worldwide. This symposium highlights the current trends in ophthalmic technology exposing both the value and limitations of such innovations. A look at Smartphone applications, telemedicine, and the automated ocular examination will be discussed. The symposium seeks to provoke the discussion, “With the automation of the optometric examination, what is the role of the optometrist, and are we ready for the future?”

Symposium Learning Objectives:
- To educate regarding the 2015 International Year of Light initiative
- To expose the learner to novel ophthalmic technologies
- To introduce ophthalmic Smartphone applications
- To understand the advantages & limitations of telemedicine
- To discuss the impact of ophthalmic technology on the future of the optometric profession

Outline

I. The International Year of Light & Optometry  
   Speaker: Nicole Putnam PhD
   A. Global initiative
      1. United Nations Educational, Scientific, and Cultural Organization (UNESCO)
      2. More than 100 partners from over 85 countries
   B. Aimed at raising global awareness about light science and its applications.
      1. Educational resources
      2. Outreach activities
      3. Celebrations

II. Why is the IYL 2015 important in Optometry?
   A. Past and Present
      1. Understanding the optics of the eye and vision
         i. Eye models
2. Optical corrections
   i. Refraction
   ii. Spectacles and contact lenses
   iii. Surgery (IOLs and Refractive Surgery)

B. Present and Future
   1. Light-based ophthalmic imaging technology
      i. Clinical
      ii. Research
      iii. Translational
   2. Optical characterization and correction
      i. Refraction
      ii. Correction

IV. Impact on the optometric profession
   A. Ophthalmic technology
      1. Role played by Optometrists and Vision Scientists
         i. Development
         ii. Implementation

I. Current Trends in Ophthalmic Technology  
   Speaker: Kirk Smick OD, FAAO

II. Ophthalmic technology has changed the way we practice over the past 10 years.

III. In the patient registration process and administrative process
   A. Electronic Health Records now make the patient’s visit more transparent to several different user groups
   B. Patient Portals allow patients to access their health records and laboratory values from home without speaking to an office employee
   C. E-scripts now allow the patients prescription to be sent to any number of providers in record time
   D. E-billing policies insure prompt payment and increases cash flow

IV. In the optical laboratory
   A. Digital lens surfacing leading to the ability to generate freeform lens designs
   B. Remote tracing reduces lens delivery time
   C. Newest lenses have polished edges that require no touching up and look better than ever
   D. The chamber design of newer edgers keep noxious odors and trash to a minimum
   E. Remote maintenance checks our equipment daily

V. In the optical ordering office
   A. B2B services greatly enhance order time for optical and contact lens inventory
   B. Bar code scanning enhances employee time for tagging frames and inventory control, eliminating spoilage and slippage

VI. In the examination and patient care arena
   A. Dry eye clinic services utilize enhanced technology
      1. Electronic IPAD questionnaire
      2. MMP-9 tear measurements
      3. Tear osmolarity measurements
      4. Wide variety of artificial tears with unique properties allow individual treatments
5. New anti-inflammatory drugs treat patient symptoms and the condition itself, which is progressive
6. Meibomian gland treatments with heat and massage enhance patient care
7. Nutraceuticals are used to enhance patient comfort

B. Patients with AMD are now treated different
   1. We use genetic testing on all patients with early signs and with a family history
   2. Nutraceuticals play a role in patient treatment
   3. Anti-VEGF injectables are now available to treat wet AMD
   4. Implantable telescopes are becoming more sophisticated
   5. FDT fields help follow patients and is replacing the original gold standard Amsler Grid

C. Patients with glaucoma receive new treatments
   1. Stent surgery often removes the need for medications
   2. Corneal thickness measurements improve diagnosis
   3. New medications enhance successful target pressures
   4. VEP measurements allow earlier diagnosis
   5. All instruments communicate with EHR programs via newer electronic communication programs

VII. These are just a few of the changes in technology that have benefitted the practice of eye care as well as the patients.

I. Examining how smartphones and their applications are impacting optometry

Speaker: Charles W. Kinnaird OD, FAAO

II. Examination
   A. Eye Handbook
   B. iExaminer
   C. PEEK
   D. Visual Fields Easy App
   E. NETRA
   F. Eye CATRA

III. Documentation
   A. Photography
      1. Gross, Anterior Segment, Posterior Segment
   B. Mobile EHR
      1. Dragon Medical 360 / Mobile Recorder
   C. Cloud Storage

IV. Referencing
   A. Journals
   B. Textbooks
   C. Epocrates
   D. ICD-9/ICD-10
   E. Medscape

V. Messaging
A. Protected Health Information (PHI) – HIPPA
B. Text Encryption Software
C. Texting Services

VI. Language Translation

VII. Payment
   A. Card Readers
   B. NFC
   C. QR Code

IX. Patient Testing
   A. Eye Screenings
   B. Eye Exams

X. Patient Referencing
   A. All About Vision
   B. Organizations
      1. AAO, AOA
   C. Ophthalmic Companies
      1. Alcon, Bausch & Lomb

XI. Patient Shopping
   A. 1 800 Contacts
   B. Google Shopping
   C. Pharmacies
   D. Big Box
   E. Spectacles

XII. Personal Health Monitoring
   A. Contact Lens Monitoring
   B. Medication Reminders
   C. Macula Tester
   D. ResearchKit
   E. Glucose/Hypertension Monitoring

XIII. Low Vision Aids
   A. Clocks/Timers
   B. Money Reader
   C. Text to Speech
   D. Magnification
   E. Talking Books
   F. Color Identification

I. Telemedicine: Sometimes it is okay to call it in
   Speaker: Anastas Pass OD, MS, JD, FAAO
II. Introduction
   A. World Health Organization telemedicine definition
B. Questions to ask before participating
C. Benefits
D. Challenges
E. Limitations
F. Overcoming challenges
G. Future issues of eye health
H. Is it in the best interest of the patient to “have it called in”?

III. Background
A. Telemedicine: the use of telecommunications to transfer medical information from one location to a specialist for interpretation at a distant location.
B. Elimination of barriers
C. Humanitarian efforts
D. Robotic technology

IV. Technology
A. Rebirth of telemedicine
B. Analog communication systems
C. Digital technology
D. High speed internet & satellite connections
E. International Space Station

V. Benefits
A. Expanding physician expertise
B. Outreach

VI. Parity
A. Payment & coverage for services
B. Insurance requirements
C. State laws
D. Medicare & Medicaid

VII. Medical-Legal
A. Individual state laws
B. Doctor-patient relationship
C. Prohibited prescribing
D. Texas Optometric Act
E. Check state laws & license scope
F. Informed consent

VIII. Conclusion

I. The automated exam & the future

Speaker: Scot Morris OD, FAAO
II. Where have we been

III. Where are we going & what the future might look like
   A. Disclaimers
   B. Why automation will be necessary
      1. Need for increased efficiency
      2. Consumer expectations
      3. Data complexity and analytics
      4. Standards of care
      5. Value based medicine initiatives
      6. Accessibility
         a. Consumer visits
         b. Digital data
   C. The flaws of what we do now
   D. The lost benefits of what we do now
   E. A glimpse of the future
      1. The history taking of the future
         a. Interactive web based with clinical decision trees
         b. Pre-screening capabilities
      2. The clinical exam
         a. Visual assessment
            i. Real world visual perception testing
            ii. Online or app based visual perception screening
            iii. Current state and development examples
         b. Ocular health assessment
            i. Remote diagnostics: kiosk based ocular health screening and evaluation
            ii. Current state and development examples
         c. Medical decision making
            i. Big data and AI
            ii. Changes in standards of care and clinical outcome assessment
            iii. Current state and development examples
      3. What will be necessary for all of this to happen
         i. Time
         ii. Money
         iii. Adaptability