1. Introduction and Background
   a. Chemistry and nomenclature
   b. History of use and abuse
   c. Natural opioids – morphine, codeine, thebaine
   d. Synthetic opioids
      i. Strong agonists – morphine, heroin, fentanyl, oxycodone, others
      ii. Moderate / Low agonists – codeine, propoxyphene
      iii. Mixed agonists – buprenorphine, pentazocine, others
      iv. Antagonists – naloxone, naltrexone, nalmefene
   e. Illegal / designer analogs
      i. Fentanyl-based
      ii. U-####
      iii. MT-45
      iv. AH-7291
      v. Others

2. Pharmacological Actions of Opioids
   a. Types of actions
      i. Analgesic
      ii. Euphoria
      iii. Respiration
      iv. Depression of cough reflex
      v. Miosis
      vi. Emesis and gastrointestinal
      vii. Hormonal and histamine effects
   b. Therapeutic uses
      i. Analgesia
      ii. Treatment of diarrhea
      iii. Relief of cough
      iv. Treatment of pulmonary edema

3. Neurobiology of Opioid Action and Addiction
   a. Endogenous opioids – endorphins, enkephalins, dynorphins, endomorphins
   b. Sites of action in the brain
   c. Overview of neuroplasticity
      i. Changes in receptors
ii. Change in signaling pathways
iii. Structural changes in the brain
iv. Timeline for development
v. Reversibility
d. Overview of brain “rewards” systems
   i. Dopaminergic
   ii. GABAergic
   iii. Glutaminergic
e. Neural effects of opioids
   i. Tolerance
   ii. Dependence
   iii. Withdrawal
   iv. Addiction
f. Consequences of withdrawal

4. Pharmaceutical Treatment of Opioid Addiction
   a. Detoxification
   b. Substitution / maintenance therapy
      i. Methadone
      ii. Buprenorphine
      iii. Heroin-assisted treatment (HAT)
   c. Antagonist therapy
      i. Naltrexone
      ii. Naloxone
Title: A Public Health Perspective of the Opioid Epidemic

Kaila Osmotherly, O.D., FAAO
Midwestern University
5865 W Utopia Ave.
Glendale, AZ  85308
623.806.7266

1. Epidemiology and Statistics
   a. Number of deaths due to opioid overdoses each day
   b. Percentage of patients who misuse opioids
   c. Number of opioid overdoses
   d. Number of opioid prescriptions generated
   e. Estimated total economic burden
      i. Healthcare costs
      ii. Lost productivity
      iii. Addiction treatment
      iv. Criminal justice involvement

2. Contributing factors
   a. Patient expectations
   b. Obesity rates
   c. Denial of previous therapies
      i. Role of pharmaceutical companies
   d. Aging population
      i. Musculoskeletal disorders
      ii. Survival rates of cancer
      iii. Frequency of surgical interventions

3. Public Health Crisis
   a. Opioid misuse
   b. Overdoses
   c. Neonatal abstinence syndrome
   d. Spread of infectious disease
      i. HIV
      ii. Hepatitis C

4. Initiatives to combat opioid crisis
   a. Federal
      i. U.S. Department of Health and Human Services (HHS)
      1. Five major priorities
         a. Improve access to treatment/recovery services
         b. Promote use of overdose-reversal drugs
         c. Increase understanding of epidemic through surveillance
         d. Promote research on pain and addition
ii. National Institutes of Health (NIH)
   1. Helping to End Addiction Long-Term (HEAL) Initiative
      a. Successes of the program
         i. Development of nasal form of naloxone
         ii. Buprenorphine for opioid use disorder
         iii. Nondrug techniques
      b. Areas of focus
         i. Support research to improve treatment of opioid misuse and addiction
         ii. Understand the development of chronic pain and develop new pain therapies
   iii. National Academy of Medicine
      1. Action Collaborative to Counter Opioid Epidemic
         a. Partnership of 35 organizations to address opioid crisis from multiple dimensions
   iv. Prescription Drug Monitoring Programs
      1. Controlled at the state level
   v. Abuse Deterrent Medications
      1. Resistant to injection or snorting
   vi. Risk Evaluation and Mitigation Strategies (REMS)
      1. Administered by the FDA on a national level

b. State
   i. Opioid Action Plan
   ii. Arizona Opioid Epidemic Act
   iii. Arizona Opioid Prescribing Guidelines
   iv. Arizona Pain and Addiction Curriculum
The Opioid Crisis and the Optometrist

Caitlin Miller, O.D.
Midwestern University
19555 N. 59th Avenue
Glendale, AZ  85308
P: 623-806-7276/F: 623-806-7212

1. Hx of opioid of epidemic and their influences
   a. 1800 Hippocrates
      i. uses as a narcotic and sedative
      ii. use after the Civil War
      iii. 1898 Heroin is synthesized
   b. Harrison Narcotics Act 1914
      i. Oxycodone
   c. 1950 Percodan
   d. 1969 WHO
   e. Controlled Substance Act 1970
   f. 1986 Cancer pain monograph
   g. 1991 wave 1 of the epidemic
      i. Influence of the pharmaceutical companies and medical societies
   h. 1999 Veterans Health adoption of pain
   i. 2000 Joint Commission
   j. 2010 Wave 2 of the epidemic
      i. Opioid to heroin
      ii. Other risks associated with heroin use
   k. 2016 Wave 3 of the epidemic
      i. Increased death due to synthetic opioids
      ii. TJC standards
      iii. CDC efforts
          1. Opposition to the efforts

2. Identification of addiction
   a. Factors
      i. Genetic
      ii. Psychosocial
         1. Legal vs. Illegal drug use
      iii. Environmental
   b. Exposure to the drug
      i. Acute or chronic pain
      ii. Anxiety, ADHD
      iii. Doctor prescribed
      iv. Family member use
   c. Behaviors
      i. Impaired control over drug use
      ii. Stealing, selling possessions, credit cards
      iii. Compulsive use continues despite harm
   d. Tools
i. Opioid risk assessment tool

3. Identification drug seeking behavior
   a. 13 red flags
   b. Drug seeking behavior in your office
      i. Involving your team
      ii. Recognizing suspicious behavior
      iii. Obtaining a thorough hx of present illness
      iv. Looking for consistency in the exam
      v. Conducting appropriate testing
      vi. Prescribing non pharm tx
         1. Non-opioid pain relievers
         2. Physical therapy and exercise
         3. Cognitive behavioral therapy
         4. Antidepressants and anticonvulsants
   vii. Proceed cautiously

4. Role of optometrists in addressing the epidemic
   a. Primary eye care
      i. May be the primary point of entry into the healthcare system
      ii. Judicious prescribing
         1. Immediate release instead of extended release
         2. Lowest effective does
         3. Short durations for acute pain
      iii. Advocacy

5. Resources for help
   a. Doctor
      i. Strategies to mitigate risk
      ii. Reviewing the PDMP
      iii. Urine Drug testing
      iv. Avoiding benzodiazepine prescribing
      v. Protecting your license
   b. Patient
      i. Treatment for the opioid use disorder
         1. Substance abuse treatment
         2. Medication assistant treatment
            a. Buprenorphine
            b. Methadone
         3. Support for patients, families and friends