Welcome to Day 1 of the 2019 Workers' Compensation Commission Educational Conference
Key Note Address

Executive Director of the Oklahoma Commerce Department

Brent Kisling
Independent Medical Examiner

Presented by
Dr. Jay Cannon
Dr. Pat Livingston
Dr. Bill Gillock
An administrative law judge may appoint an independent medical examiner to assist in determining any issue before the Commission.

85A O.S., 112, 810:15-9-1
To Qualify You Must Have:

- State BNDD and Federal DEA (Narcotics Registrations)
- Three years experience in the specific field in treatment of work-related injuries
- Valid, unrestricted professional License
- Satisfy the Commission requirements for workers’ compensation expertise –training ODGs and AMA Guides
- Malpractice insurance of one million dollars ($1,000,000)
- No felony convictions
Appointment Process

1. Submit proper forms and documents to the Commission
   a) CC-Form 463 Application for Independent Medical Examiner
   b) CC-Form 17 Physicians Disclosure Agreement
   c) Curriculum Vitae

2. Medical Director recommends appoint to the Commissioners

3. Commissioners approve a two year appointment
Who May Request an IME

- Administrative Law Judge
- Employer
- Attorneys Representing parties by agreement
  - CC-Form-13 Request for Prehearing Conference
  - CC-Form-M Request for Appointment of an IME
IME Agrees to:

• Provide independent, impartial and objective medical findings
• Conduct examination, if, necessary, within 45 days of the ALJ’s order
• Submit report which addresses the issues set out in the order
• Submit a report to the parties and Commission within 14 days
• Accept payment as set out in 810:15-9-5
Remunerations

• Review of Records and Exam $300 /HR Maximum $1600
• Depositions
  • Prep for Deposition $400 Maximum
  • Cancel Deposition $400 (3 Days)
  • Appearance at Deposition $400/HR
• IME May Receive up to $200 if Patient fails to show or if appointment cancelled by employer or respondent within 48 hours of appointment
Commission and ALJ’s Expectations of the IME

• Answer the question posed by the ALJ’s order
• Assess Causation if possible and state a clear yes or no
• Examine and Report in a timely manner (45 days of appointment)
• IME’s Opinion Value
Independent Medical Examiner
vs
Expert Medical Opinion
Standard References

• Physicians Rating Impairment
• 6th Edition of the AMA Guides
  • Hill vs American Medical Response
  • Maxwell vs Sprint PCA (Scheduled Members)
  • HB 2367 85A 2 (33)
• Treating Physicians- ODGs Commission Permanent Rules 810:15-7-1
Expert Medical Opinion

- Physician opinion and report not requested by and ALJ order
- Physician does not need to be a listed IME
- Payment based on the Medical Fee Schedule E&M section (time related)
- Standard used AMA Guides
  - HB 2367 6th Edition AMA Guides
  - ODGs Permanent Rules 810:15-7-1
- ALJ’s Evaluation of the evidence
The Independent Medical Examiner - A Primer

William R. Gillock, M.D., M.P.H.
The Audience

- The audience is not another doctor or the patient
- The audience is either a lawyer, adjuster, or ALJ
- Most are well acquainted with medical topics pertaining to WC
- Some concepts may require explanation or emphasis
Most doctors aren’t used to the different standards of evidence.

All opinions are required to be “within a reasonable degree of medical certainty”.

This means a confidence level of 90% or better.

Possible or probable are not good enough.
Causation

- The old standard was “arising out of and in the course of employment”
- This means if the claim is 1% work-related, then the claim became entirely work related.
Causation

- The old standard “arising out of and in the course of employment”
- In 2005, the standard was amended to include **Major Cause**.
- **Major Cause** means that the cause of the injury must be more than 50% work-related to be work related.
- If the injury is 49% work-related, then the injury is a personal medical condition and not work-related.
- The intended effect was to eliminate claims involving aggravation of a predominantly pre-existing condition (like a TKR) or a heart attack.
Causation

- The old standard “arising out of and in the course of employment”
- In 2005, the standard was amended to include Major Cause.
- In 2014, the standard was changed from Major Cause to Sole Cause
The Claimant

- Also referred to as the IE “injured employee” or IW “injured worker”
- The claimant is also “the patient”
The Chamber Clamps Down

"Compensable injury" means damage or harm to the physical structure of the body, or damage or harm to prosthetic appliances, including eyeglasses, contact lenses, or hearing aids, of which the major cause is either an accident, cumulative trauma or occupational disease arising out of the course and scope of employment. An "accident" means an event involving factors external to the employee that:

1. was unintended, unanticipated, unforeseen, unplanned and unexpected,
2. occurred at a specifically identifiable time and place,
3. occurred by chance or from unknown causes, or
4. was independent of sickness, mental incapacity, bodily infirmity or any other cause.
b. “Compensable injury” does not include:

(1) Injury to any active participant in assaults or combats which, although they may occur in the workplace, are the result of non-employment-related hostility or animus of one, both, or all of the combatants and which assault or combat amounts to a deviation from customary duties; provided, however, injuries caused by horseplay shall not be considered to be compensable injuries, except for innocent victims,

(2) Injury incurred while engaging in or performing or as the result of engaging in or performing any recreational or social activities for the employee’s personal pleasure,

(3) Injury which was inflicted on the employee at a time when employment services were not being performed or before the employee was hired or after the employment relationship was terminated,

(4) Injury if the accident was caused by the use of alcohol, illegal drugs, or prescription drugs used in contravention of physician’s orders. If a biological specimen is collected within twenty-four (24) hours of the employee being injured or reporting an injury, or if at any time after the injury a biological specimen is collected by the Oklahoma Office of the Chief Medical Examiner if the injured employee does not survive for at least twenty-four (24) hours after the injury and the employee tests positive for intoxication, an illegal controlled substance, or a legal controlled substance used in contravention to a treating physician’s orders, or refuses to undergo the drug and alcohol testing, there shall be a rebuttable presumption that the injury was caused by the use of alcohol, illegal drugs, or prescription drugs used in contravention of physician’s orders. This presumption may only be overcome if the employee proves by clear and convincing evidence that his or her state of intoxication had no causal relationship to the injury,

(5) Any strain, degeneration, damage or harm to, or disease or condition of, the eye or musculoskeletal structure or other body part resulting from the natural results of aging, osteoarthritis, arthritis, or degenerative process including, but not limited to, degenerative joint disease, degenerative disc disease, degenerative spondylolisthesis/spondyloolisthesis and spinal stenosis, or

(6) Any preexisting condition except when the treating physician clearly confirms an identifiable and significant aggravation incurred in the course and scope of employment.
The Chamber Clamps Down

- The injured employee shall prove by a preponderance of the evidence that he or she has suffered a compensable injury.
The Intoxication Problem

- if the accident was caused by the use of alcohol, illegal drugs, or prescription drugs used in contravention of physician's orders. If a biological specimen is collected within twenty-four (24) hours of the employee being injured or reporting an injury, or if at any time after the injury a biological specimen is collected by the Oklahoma Office of the Chief Medical Examiner if the injured employee does not survive for at least twenty-four (24) hours after the injury and the employee tests positive for intoxication, an illegal controlled substance, or a legal controlled substance used in contravention to a treating physician's orders, or refuses to undergo the drug and alcohol testing, there shall be a rebuttable presumption that the injury was caused by the use of alcohol, illegal drugs, or prescription drugs used in contravention of physician's orders. This presumption may only be overcome if the employee proves by clear and convincing evidence that his or her state of intoxication had no causal relationship to the injury.
The Problem of Scheduled Members
or
When is an Elbow Really a Hand

"Scheduled member" or "member" means hands, fingers, arms, legs, feet, toes, and eyes. In addition, for purposes of the Multiple Injury Trust Fund only, “scheduled member” means hearing impairment.
Use of the Guides

- The proper edition of the Guides depends upon the date of injury.
- We have used the Guides to the Evaluation of Permanent Impairment since the Reform Act of 1978 signed by then Gov. Boren.
- The standard before 1978 was “ordinary, manual labor” and the claimant was rated based on the doctor’s education, training, and experience.
- Since – we have used the 1st ed, 2nd ed, 3rd ed, 4th ed, 5th ed, and now the 6th ed. There are no plans for a 7th ed.
- For dates of injury on or after 2/1/14, we use the 6th edition.
The 6th edition

- Frequently maligned
- Totally different way of viewing impairment.
- Sought to combat what Judge Jerry Salyer called the “dueling doctor” problem in WC.
- Turns out people do have differing opinions on most everything and that’s why we have judges, juries, and the entire legal system.
- Back to the 6th ed. --
- The Regional Grids are so tight, that most PPD ratings are expected to be within 1-2% of each other.
The WC system is perpetually in limbo as each side attempts to get the “upper hand”

- Two sides to every case
- The employer v. The claimant
- The fights usually occur in the legislature and in the courts.
- The laws change almost yearly
- Court cases have an effect on medical practice
- You have to listen to what the attorneys tell you
Courts v. Commission

- There was a WC Commission until the 1960’s.
- Then there was a Court system until 2014.
- We now operate primarily under the Workers’ Compensation Commission.
- The Commission makes rules and regulations, and hires the ALJ’s which administer the WC laws.
- Appeals are taken to the Commission (on appeal) and then to the Supreme Court (if necessary).
"Major cause" means more than fifty percent (50%) of the resulting injury, disease or illness. A finding of major cause shall be established by a preponderance of the evidence. A finding that the workplace was not a major cause of the injury, disease or illness shall not adversely affect the exclusive remedy provisions of this act and shall not create a separate cause of action outside this act.

Sole Cause has been removed from the Title 85A.
Deposition

- Most physicians are intimidated by depositions and some attorneys use it to their advantage.
- Part of the reason some doctors don’t participate in WC is lawyers, judges, and depositions.
- The key: Listen to the Question and answer honestly
- There are other tricks “asked and answered”, “I already stated my opinion”, “I have no opinion”, “I would need further information to formulate an opinion”
- A lot of attorneys ask you to consider the specific case in a different context with differing factors to see if your opinion changes (a hypothetical)
Words Have Meaning

- Major Cause
- Sole Cause
- Not arising out of employment
- Personal mission
- Not within a reasonable degree of medical certainty
- Horseplay
- Under the influence
The ALJ

- A doctor can give his opinion
- But the ALJ determines the “facts of the case” and ultimately the outcome of the case (whether the claim is compensable, whether the claimant get treatment, and when it all ends)
Accurate description of the Examination

- The Joe Friday way “just the facts ma’am” is not good enough
- We expect the claimant to tell the truth, act honorably, try not to influence the examination, and report symptoms accurately and honestly.
- These are bad signs:
  - Hysterical
  - Waddell signs
  - Half-hearted effort
  - No objective findings
The Goal

- Basically, we are all there to help the claimant.
- The doctor to get him well
- The lawyers to see that he is treated fairly
- The system to see that he gets well and returned to work as fast possible
Where Have The Specialists Gone

- Difficulty finding most medical specialists (Derm, GI, Neuro, Pulmonary)
- There may be one doctor in OKC or Tulsa who will see claimants
- We have plenty of orthos and neuros
- Most non-surgical specialists don’t want to get involved in WC
- Most say that getting paid is the problem
- Also - most doctors don’t want to get involved with lawyers and the legal system in general.
- It’s from a lack of knowledge and awareness of what their role is.
- More specialists coming out of training - so I have hope.
The Legislature Has Spoken

- For the purpose of making permanent disability ratings to the spine, physicians shall use criteria established by the Sixth Edition of the American Medical Association "Guides to the Evaluation of Permanent Impairment".
When determining permanent disability, a physician, any other medical provider, an administrative law judge, the Commission or the courts shall not consider complaints of pain.
Major Cause Defined

"Major cause" means more than fifty percent (50%) of the resulting injury, disease or illness. A finding of major cause shall be established by a preponderance of the evidence. A finding that the workplace was not a major cause of the injury, disease or illness shall not adversely affect the exclusive remedy provisions of this act and shall not create a separate cause of action outside this act;
Take the surgery or else

Except in cases of hernia, which are specifically covered by Section 61 of this act, where an injured employee unreasonably refuses to submit to a surgical operation which has been advised by at least two qualified physicians and where the recommended operation does not involve unreasonable risk of life or additional serious physical impairment, the Commission shall take the refusal into consideration when determining compensation for permanent partial or permanent total disability.
ODG Plays a “small” role

The Official Disability Guidelines - Treatment in Workers Compensation (ODG), published by the Work Loss Data Institute, is to be recognized as the primary standard of reference, at the time of treatment, in determining the frequency and extent of services presumed to be medically necessary and appropriate for compensable injuries under this act, or in resolving such matters in the event a dispute arises. The medical treatment guidelines are not requirements, nor are they mandates or standards; they provide advice by identifying the care most likely to benefit injured workers. The guidelines shall be evidence-based, scientifically valid, outcome-focused, and designed to reduce excessive or inappropriate medical care while safeguarding necessary medical care.
Thank You.
Panel Discussion

Jay P Cannon, MD
Bill Gillock, MD
Patrick Livingstone, MD

- Discuss Experience
- Problems
- Depositions
- Pearls
- IME needs of the commission
- Cardiology, Urology, Neurology
QUESTIONS
THE OPIOID EPIDEMIC

Jason Beaman D.O., M.S., M.P.H., FAPA
Assistant Clinical Professor
Chair, Department of Psychiatry and Behavioral Sciences

CENTER FOR WELLNESS AND RECOVERY AT OSU MEDICINE
Objectives

• Understand the history of opioid epidemics in the US

• Understand the severity of the current opioid epidemic

• Understand facts/statistics surrounding the opioid epidemic

• Understand treatment efforts to combat the opioid epidemic
Opium

Opium Poppy Flower

And Others...

Codeine

Morphine

Thebaine
Opium Uses

Recreational

Medicinal

“Cure sometimes, treat often, comfort always.”

Hippocrates
Opioid Epidemics in the United States

1\textsuperscript{st}: 1890’s

2\textsuperscript{nd}: 1970’s

3\textsuperscript{rd}: Current
First Opioid Epidemic

• Morphine discovered in 1823

• Hypodermic needle invented around 1865

• Heroin discovered in this year
“I attended the first day and a half of the opioid trial. I was fascinated by Dr. David Courtwright, a history professor who has extensively about the history of opioids. He told the court about an opioid crisis in the 1870-1890s. He described the crisis as iatrogenic addiction, meaning “caused by a physician.”

Morphine was widely distributed by doctors, mostly to middle-aged women. As addiction grew, the medical community began to publish articles expressing concern of the widespread use of narcotics. Over the next several decades attitudes changed and “narcotic conservatism” set in. It was described as a major news story of the time.

The Oklahoman was there. A hundred years later, we’re still here. Sadly, we are covering the same topic.
By 1900 there were an estimated 250,000 opiate addicts in the U.S.

Morphine maintenance clinics were established in 44 cities across the United States.

Importation of smoking opium prohibited in 1909.

Harrison Narcotics Tax Act of 1914 made it illegal to prescribe opioids for maintenance of addiction.
Second Opioid Epidemic

- Returning soldiers from Vietnam
- Largely heroin

- Dr. Vincent Dole published a paper on the efficacy of methadone maintenance in 1965 which lead to the legalization of methadone maintenance treatment by the FDA in 1972
The Current Epidemic
ADDITION RARE IN PATIENTS TREATED WITH NARCOTICS

To the Editor: Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well-documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients,6 Peridoxan in one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

JANE PORTER
HERSHL JICK, M.D.
Boston Collaborative Drug Surveillance Program
Waltham, MA 02154
Boston University Medical Center


PROGNOSTIC VALUE OF IMMUNOLOGIC MARKERS IN ADULTS WITH ACUTE LYMPHOCYTIC LEUKEMIA

To the Editor: The letter from Dr. Bitran1 has raised an important but as yet unanswered question about prognostic factors in acute lymphoblastic leukemia in adults. On the basis of experience with 13 patients, Dr. Bitran suggested that adults with T-cell disease could have a limited survival and a lower rate of remission than those with B-cell disease. From January, 1974, to June, 1979, we studied 42 consecutive adults (more than 12 years old) with acute lymphoblastic leukemia for spleen-scintiscans, bone marrow aspirates, and surface immunoglobulins. Patients were classified as having T-cell disease if they had more than 40% per cent of marrow blasts, forming E-rosettes, or B-cell disease if they were positive for surface immunoglobulins. Details of the techniques have been reported elsewhere.2 There were 31 patients with null-cell leukemia, eight with 'null leukemia' and five with B-cell leukemia. All patients were treated with 17,000 U per square meter daily). Patients who had complete remissions (except for three over 60 years of age) received central nervous system therapy (5,000 rads to the skull, with five intrathecal injections of methotrexate or ara-A or cytarabine, or both). During complete remission, they were given 6-mercaptopurine (70 mg per square meter daily), methotrexate (25 mg per square meter each week), and courses of vincristine and prednisone every three to four months.

Results are shown in Table 1. They do not support the suggestion by Dr. Bitran that in adults with acute lymphoblastic anemia, T-cell leukemia has a poorer prognosis than B-cell disease. However, because of the limited number of cases and the short follow-up, the present data are far from definitive. More information on this point is needed. The identification of prognostic factors in acute lymphoblastic anemia in adults is critical, not only for the choice of induction therapy but also because young adults with an established poor prognosis could profit from allogeneic-marrow transplantation during the first remission. Therefore, we suggest that for the time being it may be wise to base prognosis on more established criteria, such as age and blast-cell count in the blood.

MICHELE BAGORANI, M.D.
MARCO GORB, M.D.
SANTO TUMA, M.D.
40138 Bologna, Italy
S. Orsola University Hospital


DECREASED KETOGENESIS DUE TO DEFICIENCY OF HEPATIC CARBON DEACETYLCARBOXYLASE TRANSFERASE

To the Editor: In 1979 Engel reported in the Journal a disorder of the skeletal muscle without fasting hyperketonemia and with a normal increase in ketone bodies after oral medium-chain triglycerides.1 He suggested a possible defect in the use of long-chain fatty acids. Usually, fasting is associated with hyperketonemia except in hyperinsulinemic states. Hyperketonemia results from the release of long-chain fatty acids from adipose tissue and their intrahepatic channeling toward mitochondrial oxidation and ketogenesis. The
Reasons for Prescription Opioid Epidemic

- Aggressive Industry Marketing of Opioid Products in the late 1990s and early 2000s
  - Opioid phobia and the needless suffering of patients
  - Opioid addiction is rare if pain is managed appropriately
  - Opioids can be easily discontinued
- Pain as the 5th Vital Sign (1996)
  - Adopted by professional societies, the Joint Commission, and the Federation of State Medical Boards
5th Vital Sign
I. Recognize and Treat Pain Promptly

IA. Chart and Display Patients’ Self-report of Pain.—A measure of pain intensity should be recorded in a way that makes it highly visible and facilitates regular review by members of the health care team. This information should be incorporated in the patient’s permanent record. The data can be recorded on a vital sign sheet at the patient’s bedside (Figure), a page at the front of the patient’s record, or a chart in the nursing station or outpatient clinic, depending on the routine work flow of the health care team. Unrelieved pain should be a “red flag” that promptly turns attention to this problem.
IV. Current information and experience suggest that many commonly held assumptions need modification

Addiction

Misunderstanding of addiction and mislabeling of patients as addicts result in unnecessary withholding of opioid medications. Addiction is a compulsive disorder in which an individual becomes preoccupied with obtaining and using a substance, the continued use of which results in a decreased quality of life. Studies indicate that the de novo development of addiction when opioids are used for the relief of pain is low. Furthermore, experience has shown that known addicts can benefit from the carefully supervised, judicious use of opioids for the treatment of pain due to cancer, surgery, or recurrent painful illnesses such as sickle cell disease.
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Figure 1. Number and Type of Citations of the 1980 Letter, According to Year.
Shown are number of citations of a 1980 letter to the Journal in which the correspondents claimed that opioid therapy rarely resulted in addiction. The citations are categorized according to whether the authors of the articles affirmed or negated the correspondents’ conclusion about opioids. Details about “other” citation categories are provided in Section 2 in the Supplementary Appendix.
Oxycontin Sales

OxyContin sales

Source: IMS National Sales Perspectives

Graphic: Los Angeles Times/TNS
Painkiller Prescriptions

The number of painkiller prescriptions varies widely by state, from 32 per 100 people in Hawaii to 142 per 100 people in Maryland. These trends highlight wide variation in healthcare treatment and prescribing, which has contributed to an epidemic of opioid addiction and overdose deaths.

Source: U.S. Centers for Disease Control and Prevention
© 2017 Tealux Charitable Trusts
Oklahoma Overdose 2014
# Updated Opioid Rx Information

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<td>Tuscaloosa, AL</td>
<td>1072.49</td>
<td>732.73</td>
<td>-0.32</td>
</tr>
<tr>
<td>12</td>
<td>Hickory-Morganton-Lenoir, NC</td>
<td>820.70</td>
<td>730.55</td>
<td>-0.11</td>
</tr>
<tr>
<td>13</td>
<td>Fayetteville, NC</td>
<td>824.84</td>
<td>726.53</td>
<td>-0.12</td>
</tr>
<tr>
<td>14</td>
<td>Birmingham, AL</td>
<td>1070.32</td>
<td>726.44</td>
<td>-0.32</td>
</tr>
<tr>
<td>15</td>
<td>Panama City, FL</td>
<td>856.31</td>
<td>724.61</td>
<td>-0.15</td>
</tr>
<tr>
<td>16</td>
<td>Tulsa, OK</td>
<td>855.08</td>
<td>705.03</td>
<td>-0.18</td>
</tr>
<tr>
<td>17</td>
<td>Shreveport-Bossier City, LA</td>
<td>962.20</td>
<td>703.91</td>
<td>-0.27</td>
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<tr>
<td>18</td>
<td>Huntsville, AL</td>
<td>968.60</td>
<td>698.69</td>
<td>-0.28</td>
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<tr>
<td>19</td>
<td>Monroe, LA</td>
<td>872.48</td>
<td>684.80</td>
<td>-0.22</td>
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<tr>
<td>20</td>
<td>Pine Bluff, AR</td>
<td>888.52</td>
<td>681.41</td>
<td>-0.23</td>
</tr>
<tr>
<td>21</td>
<td>Fort Walton Beach, FL</td>
<td>849.68</td>
<td>679.38</td>
<td>-0.20</td>
</tr>
<tr>
<td>22</td>
<td>Oklahoma City, OK</td>
<td>886.38</td>
<td>677.02</td>
<td>-0.24</td>
</tr>
</tbody>
</table>
US Causes of Deaths

Deaths From Drug Overdoses, Car Accidents, and Gun Violence

From 1999 to 2014

Source: Centers for Disease Control and Prevention [Get the data]
Opioid Overdoses

Overdose Deaths Involving Opioids, by Type of Opioid, United States, 2000-2016

**Painkiller Sales and Overdose Deaths**

The nation’s rising overdose death rate from painkillers such as Vicodin, Percocet, and OxyContin closely parallels an increase in opioid prescription sales over the past 15 years.

\[ \text{Sales (bg per 10,000) - Deaths (per 100,000)} \]

* Sales data is unavailable for 2012.

Source: U.S. Drug Enforcement Administration and Centers for Disease Control and Prevention
© 2016 The Rose Charitable Trust
Sources Where Pain Prescription Pain Relievers Were Obtained in 2006

- Free from Friend/Relative: 0.10%
- Bought/Stole from Friend or Relative: 3.90%
- One Doctor: 1.60%
- More Than One Doctor: 19.10%
- Drug Dealer/Stranger: 14.80%
- Bought on Internet: 55.70%
- Other:

Source Where Friend/Relative Obtained Prescription Pain Reliever

- One Doctor: 80.70%
- More Than One Doctor: 4.90%
- Free from Friend/Relative: 7.30%
- Bought/Stole from Friend/Relative: 1.60%
- Drug Dealer/Stranger: 2.20%
- Other: 3.30%

Response to the Epidemic
CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016
1. OPIOIDS ARE NOT FIRST-LINE THERAPY

Non-pharmacologic therapy and non-opioid pharmacologic therapy are preferred for chronic pain. Clinicians should consider opioid therapy only if expected benefits for both pain and function are anticipated to outweigh risks to the patient. If opioids are used, they should be combined with non-pharmacologic therapy and non-opioid pharmacologic therapy, as appropriate.
2. ESTABLISH GOALS FOR PAIN AND FUNCTION

Before starting opioid therapy for chronic pain, clinicians should establish treatment goals with all patients, including realistic goals for pain and function, and should consider how opioid therapy will be discontinued if benefits do not outweigh risks. Clinicians should continue opioid therapy only if there is clinically meaningful improvement in pain and function that outweighs risks to patient safety.
3. DISCUSS RISKS AND BENEFITS

Before starting and periodically during opioid therapy, clinicians should discuss with patients known risks and realistic benefits of opioid therapy and patient and clinician responsibilities for managing therapy.
4. USE IMMEDIATE-RELEASE OPIOIDS WHEN STARTING

When starting opioid therapy for chronic pain, clinicians should prescribe immediate-release opioids instead of extended-release/long-acting (ER/LA) opioids.
5. USE THE LOWEST EFFECTIVE DOSE

When opioids are started, clinicians should prescribe the lowest effective dosage. Clinicians should use caution when prescribing opioids at any dosage, should carefully reassess evidence of individual benefits and risks when considering increasing dosage to ≥50 morphine milligram equivalents (MME)/day, and should avoid increasing dosage to ≥90 MME/day or carefully justify a decision to titrate dosage to ≥90 MME/day.
6. PRESCRIBE SHORT DURATIONS FOR ACUTE PAIN

Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids. Three days or less will often be sufficient; more than seven days will rarely be needed.
7. EVALUATE BENEFITS AND HARMS FREQUENTLY

Clinicians should evaluate benefits and harms with patients within 1 to 4 weeks of starting opioid therapy for chronic pain or of dose escalation. Clinicians should evaluate benefits and harms of continued therapy with patients every 3 months or more frequently. If benefits do not outweigh harms of continued opioid therapy, clinicians should optimize other therapies and work with patients to taper opioids to lower dosages or to taper and discontinue opioids.
8. USE STRATEGIES TO MITIGATE RISK

Before starting and periodically during continuation of opioid therapy, clinicians should evaluate risk factors for opioid-related harms. Clinicians should incorporate into the management plan strategies to mitigate risk, including considering offering naloxone when factors that increase risk for opioid overdose, such as history of overdose, history of substance use disorder, higher opioid dosages (≥50 MME/day), or concurrent benzodiazepine use, are present.
9. REVIEW PDMP DATA

Clinicians should review the patient’s history of controlled substance prescriptions using state prescription drug monitoring program (PDMP) data to determine whether the patient is receiving opioid dosages or dangerous combinations that put him or her at high risk for overdose. Clinicians should review PDMP data when starting opioid therapy for chronic pain and periodically during opioid therapy for chronic pain, ranging from every prescription to every 3 months.
10. USE URINE DRUG TESTING

When prescribing opioids for chronic pain, clinicians should use urine drug testing before starting opioid therapy and consider urine drug testing at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit drugs.
11. AVOID CONCURRENT OPIOID AND BENZODIAZEPINE PRESCRIBING

Clinicians should avoid prescribing opioid pain medication and benzodiazepines concurrently whenever possible.
12. OFFER TREATMENT FOR OPIOID USE DISORDER

Clinicians should offer or arrange evidence-based treatment (usually medication-assisted treatment with buprenorphine or methadone in combination with behavioral therapies) for patients with opioid use disorder.
LAWSUITS

OKLAHOMA SUES DRUGMAKERS OVER OPIOIDS

Purdue

Johnson & Johnson

Teva

Allergan

Bloomberg

CENTER FOR WELLNESS AND RECOVERY AT OSU MEDICINE
LAWSUITS

- MUNICIPALITIES
  - Kermit, WV
  - Chicago, IL
  - Everett, WA

- COUNTIES
  - Mingo in WV
  - Nassau in NY
  - Orange in California

- STATES
  - Mississippi
  - Ohio
  - New Mexico
Teva Pharmaceuticals Agrees To $85 Million Settlement With Oklahoma In Opioid Case

May 26, 2019 - 5:05 PM ET

SHANNON VAN SANT

Teva Pharmaceuticals has reached a settlement with the state of Oklahoma over its alleged role in fueling the opioid epidemic. In March, drugmaker Purdue Pharma agreed to a $270 million settlement.

Teva Television
MWC DOCTOR ARRESTED
MURDER CHARGES

DR. REGAN NICHOLS

MIDWEST CITY DOCTOR CHARGED WITH 2ND DEGREE MURDER

CENTER FOR WELLNESS AND RECOVERY AT OSU MEDICINE
• “Prosecutors say ten patients of Nichols died of overdoses over the span of four years”

• “Each one of the individuals was prescribed an excessive amount of medication the same months of their deaths which were all the result of multi-drug toxicity, according to the Oklahoma Examiner’s reports” (Atty General Mike Hunter)

• According to court documents, prosecutors allege that between January 2010 and October 2014, Nichols prescribed more than three million doses of controlled dangerous substances. Five people who died were prescribed more than 1,800 opioid pills in the same months of their deaths.

Alternative Opiates

• As prescriptions become more scarce
  • Proper prescribing
  • Regulation

• Individuals move to Alternative Opiates
  • Fentanyl
  • Opana
  • Heroin
Heroin

Heroin Deaths in Oklahoma

OBN: Heroin Kills 7 Oklahomans In 7 Days

Monday, June 3rd 2019, 9:36 PM CDT

By: Sylvia Corkill
142 cases of HIV linked to illegal drugs

Many cases in Scott County are traced to people injecting Opana, a prescription painkiller similar to heroin and sold in pill form.

Opana is a hard pill that is difficult to crush and dissolve for injection drug use. For that reason, users find larger needles are necessary.

Oxymorphone
An opioid painkiller sold under names Opana and Numorphan

To slow the rise in HIV, Indiana has extended its emergency needle exchange program in the area.

SOURCES: CENTERS FOR DISEASE CONTROL AND PREVENTION, STATE OF INDIANA  BILL THORNBRO | HERALD-TIMES
Benefits of MAT: Decreased Mortality

Death rates:
- General population
- Medication-assisted treatment
- No treatment

Standardized Mortality Ratio

Dupouy et al., 2017
Evans et al., 2015
Sordo et al., 2017
Naloxone

- Expanded use of Naloxone

- Recommendation for Rx in chronic opioid patients

- Available without RX in 41 states

- Training for police/teachers etc.
New federal grants to help train rural doctors to fight addiction

The Obama administration is committing $10 million to rural health officials in three states that are testing the waters of telemedicine as they try to stem the rising tide of overdose deaths.

The latest set of federal grants, which was announced at a meeting of the National Governors Association, will go to Oklahoma, Colorado and Pennsylvania over the next three years.

All three states have committed to using a telemedicine-style training program to help expand treatment in areas that have been historically underserved by healthcare providers.

States will use a model called Project ECHO, in which rural primary care doctors watch videos by urban specialty doctors who are trained in complex health problems, like opioid addiction.

The Project ECHO approach, which was developed by the University of New Mexico, became widely touted after its use to help primary care doctors treat hepatitis C.

A recent study published in the Journal of Substance Abuse found that the model is a strong tool to help expand anti-addiction treatment.
OSU Addiction Medicine ECHO
OSU Center for Health Sciences announces initiative to combat opioids
Tulsa center to boost research, open addiction and pain clinics, improve training

By Randy Krehbiel Tulsa World  Nov 3, 2017 Updated 9 hrs ago  • 1

The Oklahoma State University Center for Health Sciences is undertaking additional research, education and treatment initiatives in an effort to combat opioid abuse and other forms of addiction, state and university officials said Friday.

“Too many Oklahoma lives have been cut short from opioid overdose,” Dr. Kayse Shrum, president of OSU-CHS, said during a news conference at the school’s west Tulsa campus. “Once-capable men and women find themselves unable to function at home and at work.”

Shrum and Dr. Jason Boeman, head of the OSU-CHS psychiatry and behavior sciences department, said the school will open an addiction clinic in association with 12832, a Tulsa addiction treatment program, and a pain management clinic, probably at the OSU Medical Center downtown.

Officials said OSU-CHS will also put additional resources into researching addiction and addiction treatment, and in the training of treatment professionals.

The entire initiative is under the OSU Center for Wellness and Recovery banner.

Shrum noted the school recently initiated Project Echo to bring addiction information and treatment and pain management...
OSU CHS Center for Wellness & Recovery

Clinical Practice
- Addiction Medicine Clinic
- Addiction Medicine Project ECHO
- Blue Cross Blue Shield of Oklahoma Affordability Cares

Research
- Secured AOA Funding for OMM and Treatment
- Cognitive Rehabilitation Study Funded
- Addiction and Data Analytics (CHSI)
- BBCD Application Submitted

Training & Education
- Undergraduate Addiction Medicine Course
- Waiver Training Second Year Residents
- Addiction Medicine Fellowship
- Continuing Medical Education

Policy & Advocacy
- Opioid Epidemic Response
- Opioid Overdose Fatality Review Board
Questions
Medication Assisted Treatment

Buprenorphine Waiver Training
Fall 2019

Saturday, October 12
Friday, October 25
Saturday, November 9
Friday, November 22
Friday, December 6

CME credit earned upon completion
Addiction Medicine Conference

Fall 2019
Tandy Conference Center
Tulsa, OK

September 11: Addiction and Law
September 12: Update in Addiction Medicine
September 13-15: Addiction Medicine Board Review Course

CME Available
Register at osu-cme.com OR email osu-cwr@okstate.edu
Morning Break 10:00AM to 10:30AM
Workers’ Compensation Commission
Results of the 2013 Reforms

Commissioner Mark Liotta
Commissioner Jordan Russell
Commissioner Megan Tilly
What is Workers' Compensation?

The Grand Bargain
Exclusive Remedy and The No Fault System

Insurance
Private Insurance, Own Risk, TPA, Group Own Risk, and Exempt

The WCC
Trials, Mediation, Compliance, Permitting, and Records
Cases Filed

Year: 2001 - 2018

- 2001: 18,553
- 2002: 18,474
- 2003: 17,390
- 2004: 16,933
- 2005: 15,740
- 2006: 14,919
- 2007: 14,970
- 2008: 15,420
- 2009: 15,838
- 2010: 14,779
- 2011: 13,960
- 2012: 14,737
- 2013: 7,702
- 2014: 7,992
- 2015: 7,935
- 2016: 3,542
- 2017: 6,631
- 2018: 7,935
Disposition Trends

Disposition by Hearing
Disposition Without Hearing
Orders for Mediation

Year | Orders
-----|--------
2014 | 43
2015 | 621
2016 | 1199
2017 | 1552
2018 | 1736
6% of Court Cases Went to Appeals

92% Drop in Appeals

* Data compiled from Workers’ Compensation Court Annual Reports 2001-2013 and WCC Annual Reports 2014-2018
Oklahoma Workers’ Compensation Premium Reductions 2013-2016

31.1% reduction in aggregate premium totals since 2013.
Number of New Companies that Added Work Comp
Number of Existing Companies Adding Work Comp to Licenses

* Data provided by the Oklahoma Insurance Department
The above chart represents a 43% decrease in personnel from the court to the commission while providing more services.
All Orders Written Per Month:
Including Form 18s (Request For Court Administrator Review of Disputed Medical Charges) and IMEs
### Figure 6. Net five-year voluntary premium level change, 1/2012-12/2016

Based on NCCI data

<table>
<thead>
<tr>
<th>State</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oklahoma</td>
<td>-34.3%</td>
</tr>
<tr>
<td>Michigan</td>
<td>-31.4%</td>
</tr>
<tr>
<td>West Virginia</td>
<td>-29.3%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>-25.3%</td>
</tr>
<tr>
<td>Texas</td>
<td>-22.9%</td>
</tr>
<tr>
<td>Kentucky</td>
<td>-21.9%</td>
</tr>
<tr>
<td>South Dakota</td>
<td>-20.8%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>-20.0%</td>
</tr>
<tr>
<td>Montana</td>
<td>-19.8%</td>
</tr>
<tr>
<td>Kansas</td>
<td>-19.4%</td>
</tr>
<tr>
<td>Arkansas</td>
<td>-18.8%</td>
</tr>
<tr>
<td>Oregon</td>
<td>-14.4%</td>
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<tr>
<td>North Carolina</td>
<td>-14.2%</td>
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<tr>
<td>Alabama</td>
<td>-12.8%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>-11.8%</td>
</tr>
<tr>
<td>Alaska</td>
<td>-11.4%</td>
</tr>
<tr>
<td>Illinois</td>
<td>-11.0%</td>
</tr>
<tr>
<td>Maine</td>
<td>-0.7%</td>
</tr>
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</table>
Figure 7. Net five-year voluntary premium level change, 1/2014-12/2018
Based on NCCI data

Note: All data are from the NCCI Annual Statistical Bulletin, Exhibit 8, 2018 Edition and Oregon rate filing history.
Data do not include changes in residual markets. The 2018 component of change is based upon preliminary filings, which may not reflect rate changes for late 2018. Data are not available for North Dakota, Ohio, Washington, and Wyoming.
Figure 7. Net five-year voluntary premium level change, 1/2014-12/2018
Based on NCCI data
Questions?
Judicial Update

Chief Administrative Law Judge, Shane Curtin
Legislative Update

Commissioner Jordan Russell
The FAIR Health Private Claims Repository

29+ Billion
Medical and Dental Claims from 2002 to the Present
Updated on a monthly basis

150+ Million
Covered Lives

493
Regions in the United States
Insights into the FAIR Health Private Claims Repository

Coverage
- All 50 States and District of Columbia,
- US Territories – Puerto Rico, Guam, US Virgin Islands

60 Contributors
- National and regional payors
- Third-party administrators

Private Insurance Claims
- Fully insured and self-insured/ERISA plans
- Cover 75% of privately insured US population

Quality Testing and Control
- Data validated with expert-vetted tests for completeness, volume, accuracy, etc.
- Recognized statistical outlier methodologies exclude excessive low and high values that distort distribution
Spotlight on Oklahoma

Number of Contributors
(Over 10k claims)

| 46 |

Total Claims in Database

| Claims (2018) | Approx. 27.6 million |
| Claims (2002 – Present) | Approx. 247.7 million |

Geographic Divisions

| Geozips (Standard Benchmark Products) | 8 geozips |
| Geographic areas can be redefined for custom products |

*By comparison, Medicare uses 1 region (GPCI) for Oklahoma.*
FAIR Health: Certified CMS Qualified Entity (QE)

- Complete collection of Medicare Parts A, B and D claims data for all 50 states and Washington, DC
- Entrusted with QE data due to national breadth of FH private claims collection/state-of-the-art security protections
- Data from 2013 to present
- 28+ billion Medicare claims
Stakeholders We Serve

- Government
- Researchers/Universities
- Payors
- Employers
- Healthcare Systems/Facilities
- Healthcare Professionals
- Bill Review Companies
- Consumers
- Unions
- TPAs
- Auto Liability
- Benefits Planners
- Dispute Resolution Entities

- Consultants
- Pharma
- Actuaries
- Brokers
- DME Companies
- Think Tanks
- Investment Analysts
- Litigation Support
- Medical Societies
- Trade Associations
- Workers’ Compensation
- Institutes/Foundations
- Healthcare Information Technology (HIT)
How FAIR Health Helps All Stakeholders

- Operations and Management
- Government and Policy Making
- Public Health and Research
- Health Literacy and Consumer Engagement
FAIR Health Serves As Class Action Remedy

• **Lebanon Chiropractic Clinic v. Liberty Mutual Insurance Company (2015)**
  o Illinois class action under “PIP” – personal auto policies
  o Claims in 38 states and District of Columbia
  o Settlement: monetary award and future obligations

• Agreed standard: Liberty Mutual companies must use FAIR Health 80th percentile benchmark as UCR for five years

• See [http://www.lebanonpipsettlement.com/](http://www.lebanonpipsettlement.com/)
FAIR Health State Policy Connections:
Laws, Regulations, Programs and Legislation
Interaction with Federal Agencies and Officials

CDC
CMS.gov
U.S. BUREAU OF LABOR STATISTICS
Congressional Budget Office
HHS.gov
U.S. DEPARTMENT OF AGRICULTURE
FDA
U.S. FOOD & DRUG ADMINISTRATION
Office of National Drug Control Policy
GAO
U.S. Government Accountability Office
HRSA
Health Resources & Services Administration
Consumer Resources

Estimate your healthcare expenses.
Get essential information on costs for thousands of procedures and learn insurance basics.

Search for a Medical Cost  Search for a Dental Cost

Extra Information for New York State Residents!
For 100 commonly performed procedures in New York State, access a listing of hospital services with information about the providers' prices and practices. For some hospitals in Albany, Buffalo, Syracuse and Westchester, access pricing for a set of outpatient procedures and various quality metrics.

Get NYS provider and hospital info +
Spotlight on Workers’ Compensation
Workers’ Compensation: States’ Goals

- Offer fair, equitable fee schedule
  - Incorporate new procedures and changing coding practices
  - Enable access to providers
- Create consensus among diverse stakeholders
- Ensure fee schedule reflects needs and particular characteristics of relevant jurisdiction
- Minimize reimbursement disputes and administrative “static”
- Provide timely updates
- Strive to provide medical care:
  - Reasonable and necessary
  - Promote positive medical outcomes
  - Enable the worker to return to work and pre-accident quality of life
FAIR Health Assists with Fee Schedules
How FAIR Health Helps

- **Data Source**
  - Benchmarks – state level or regional communities
  - State staff performs analysis and develops fee schedule

- **Fee Schedule Gap Fill**
  - Address gaps in fee schedules
  - Valuing procedures not included in fee schedule

- **Focused Issue Review**
  - E.g., drug testing, cost of implants, telehealth

- **Analytic Support**
  - Comparative reviews: compare fee schedule to private claims data and Medicare fees
  - Detailed utilization and trending

- **Fee Schedule Development Support**
  - Utilizing various data sources
  - Rate tables
  - Guidelines and ground rules
  - Creation of New Fee Schedules – e.g., Dental, ASC

- **Stakeholder Presentations**
- **Reference Point for Dispute Resolution**
- **Fee Schedule Distribution**
Benchmarks and Methodology
## FAIR Health Benchmarks

<table>
<thead>
<tr>
<th>FH Benchmarks</th>
<th>Description</th>
<th>FH Charge Benchmarks</th>
<th>FH Allowed Benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental</td>
<td>Arrayed by Current Dental Terminology (CDT) codes for dental procedures.</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Anesthesia</td>
<td>Arrayed by CPT, anesthesia and surgical procedure codes.</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Healthcare Common Procedure Coding System (HCPCS)</td>
<td>Arrayed by Level II HCPCS codes for products, supplies and services generally not included in CPT codes, such as ambulance services, physician-administered drugs, durable medical equipment (DME), prosthetics, orthotics and supplies.</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Inpatient Facility DRG</td>
<td>Arrayed by DRG codes for services performed in a hospital inpatient setting.</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Inpatient Facility ICD Proc/Rev</td>
<td>Arrayed by ICD-10 procedure codes associated with a set of values based on revenue codes. (coming October 2019).</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Outpatient Facility</td>
<td>Arrayed by CPT codes for services performed in a hospital outpatient setting.</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Ambulatory Surgery Center (ASC)</td>
<td>Arrayed by CPT and HCPCS codes at state, regional and national levels for ASC-specific facility claims.</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Category III</td>
<td>Arrayed by Category III CPT codes, temporary codes for emerging technologies, services, procedures and service paradigms.</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Medicare GapFill PLUS™</td>
<td>Consolidates all professional CMS fee schedules into a single product and provides values for over 1,500 CPT and HCPCS codes not covered by CMS, using FAIR Health data and Medicare methodologies.</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>
Range of Benchmarks: Percentiles

• **Charge Benchmarks**: A percentile illustrates where a value falls in the distribution of values in the database
  - 80th percentile: represents the benchmark at the point that 80% of standardized charge data are equal to or less than the benchmark value (and 20% are higher)
  - Standard products include the average values and the percentiles from 50th to 95th

• **Allowed Benchmarks**: Based on imputation methodology
  - The ratio of the average allowed amount to the average billed charge for procedure categories is determined
  - Each charge value for a procedure within the corresponding category in a geozip is multiplied by the corresponding ratio to determine allowed values
  - After application of outlier rules, allowed values are arrayed lowest to highest; percentiles and the average values are then determined

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean (Avg.)</th>
<th>Mode</th>
<th>Percentiles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Office Outpatient Visit – 15 minutes</td>
<td>$96</td>
<td>$100</td>
<td>$93</td>
</tr>
</tbody>
</table>
## FAIR Health and CMS: A Comparison

<table>
<thead>
<tr>
<th>Category</th>
<th>FAIR Health Data</th>
<th>Medicare Fee Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geography</strong></td>
<td>• Most benchmarks are organized into 493 regions</td>
<td>112 Geographic Practice Cost Indices (GPCIs)</td>
</tr>
<tr>
<td></td>
<td>• Custom regions available</td>
<td></td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td>• FH® Charge Benchmarks based directly on actual charges in specific region; for infrequently performed procedures, a relative market value methodology is applied</td>
<td>• Relative values and conversion factors set by committee</td>
</tr>
<tr>
<td></td>
<td>• FH® Allowed Benchmarks reflect imputed allowed amounts (in-network rates) for specific regions</td>
<td>• Geographical adjustments for GPCI areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Some procedures omitted as not relevant to covered population</td>
</tr>
<tr>
<td><strong>Relationship to Market</strong></td>
<td>• Mirror market distribution of charges and allowed amounts and also reflect market differentials for charges and allowed amounts for services specific to different types of specialists</td>
<td>• Fees adjusted to meet national budget and policy objectives</td>
</tr>
<tr>
<td></td>
<td>• Reflect the experience of the privately insured</td>
<td>• Not all procedures are covered because system was designed for particular populations: the elderly, disabled and end-stage renal disease patients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Comparative fees for different types of specialists often differ from market relationships</td>
</tr>
</tbody>
</table>
Emergency Room Visit Procedure

<table>
<thead>
<tr>
<th>CPT CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>99283</td>
<td>EMERGENCY DEPT VISIT (MODERATE SEVERITY)</td>
</tr>
</tbody>
</table>
## Radiology Procedure

### Oklahoma City– Geozip 731

<table>
<thead>
<tr>
<th>CPT CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>72148</td>
<td>MRI spinal canal and contents; lumbar; without contrast</td>
</tr>
</tbody>
</table>
FH® Medicare GapFill PLUS™

• A Blended and Robust Solution
  o Single source for Medicare fees and procedures codes not currently valued by CMS
  o Includes values from all Medicare nonfacility fee schedules
    ▪ Medicare Physician Fee Schedule (MPFS)
    ▪ Durable Medical Equipment, Prosthetics/Orthotics and Supplies (DMEPOS)
    ▪ Parenteral and Enteral Nutrition (DMEPEN)
    ▪ Clinical Laboratory Fee Schedule (CLAB)
    ▪ Average Sales Price (ASP) drug pricing file
    ▪ Ambulance Fee Schedule (AFS)
  o FAIR Health data for unvalued procedure codes
  o Zip codes mapped to CMS geographic groupings
  o Values provided for over 1,500 codes not valued by CMS
Serve as Data Source

• Benchmark data
  o Geozip level
  o Custom communities
  o State level
  o Other geographic areas for comparative purposes

• Trending reports
  o Cost
  o Utilization

• Comparative analyses

• Address gaps in fee schedules
  o Source of data for gaps in fee schedules adhering to requisite geographic configurations
    ▪ Scaled rates for use with Medicare fee schedules
    ▪ Align with state conversion factors
Stakeholder Feedback

• Understanding stakeholder needs is an important part of the process
  o Employers
  o Insurance carriers
  o Providers
  o Administrators

• What is working well?
• What areas could be enhanced?
Offering Feedback

• Gather stakeholder feedback to support the current study
• Advisory committees
• FAIR Health can collect and present feedback for discussion with the Workers’ Compensation Commission
  o Send to: okfeedback@fairhealth.org
  o Include the following information:
    ▪ Name
    ▪ Detailed description of your feedback
    ▪ Contact information where we can reach you if we have questions
• Please provide by November 1 so your feedback can be considered for the current study
Thank You

Donna Smith
Executive Director, Business Development
281-513-0904 | dsmith@fairhealth.org

Chris O’Donnell
Executive Director, Customer Experience
212-257-2367 | codonnell@fairhealth.org

Joel Brill, MD, Medical Consultant
602-418-8744 | jbrill@fairhealth.org
Workers’ Compensation Compliance Review

Ian Steedman
Director of Compliance
Notification of a Violation

- Form 3 comes submitted showing no insurance coverage
- Whistle Blowers
- Cancellation notice from NCCI
Investigation

1. Check the Data Bases for Employees-(NCCI, OESC, SOS, Facebook, Google)
2. Confirmation of Coverage Letter (CCL) goes out to Employer
3. If No Response → Subpoena is Issued
4. Still No Response → File a Proposed Judgment Outlining allegations and proposed penalties
A. 1

1. By insuring and keeping insured the payment of compensation with any stock corporation, mutual association, or other concerns authorized to transact the business of workers' compensation insurance in this state. When an insurer issues a policy to provide workers' compensation benefits under the provisions of this act, it shall file a notice with the Commission containing the name, address, and principal occupation of the employer, the number, effective date, and expiration date of the policy, and such other information as may be required by the Commission. The notice shall be filed by the insurer within thirty (30) days after the effective date of the policy. Any insurer who does not file the notice required by this paragraph shall be subject to a fine by the Commission of not more than One Thousand Dollars ($1,000.00);
Whenever the Commission has reason to believe that any employer required to secure the payment of compensation under this act has failed to do so, the Commission shall serve on the employer a proposed judgment declaring the employer to be in violation of this act and containing the amount, if any, of the civil penalty to be assessed against the employer under paragraph 5 of this subsection.

Make sure you are covered if you need to be!
85A O.S. § 40
B. 2. c.

If a written request for hearing is not filed with the Commission within the time specified in subparagraph a of this paragraph, the proposed judgment, the proposed penalty, or both, shall be a final judgment of the Commission and shall not be subject to further review by any court, except if the employer shows good cause why it did not timely contest the judgment or penalty.

Don’t wait, respond quickly!

KEEP CALM AND RESPOND
85A O.S. § 40  
B. 2. d

A proposed judgment by the Commission under this section shall be prima facie correct, and the burden is on the employer to prove that the proposed judgment is incorrect.

It is up to you to show why you don’t have coverage.

I SAY SUH

I NEED TO DEFEND MY HONOR AGAINST "SCURRILOUS" ALLEGATIONS.
85A O.S. § 40
B. 5.

The Commission may assess a fine against an employer who fails to secure the payment of compensation in an amount up to One Thousand Dollars ($1,000.00) per day of violation not to exceed Fifty Thousand Dollars ($50,000) for the first violation payable to the Workers' Compensation Fund.

Compliance is what we are aiming for, not collecting fines.
If an employer fails to secure the payment of compensation or pay any civil penalty assessed against the employer after a judgment issued under this section has become final by operation of law or on appeal, the Commission may petition the Oklahoma County District Court or the district court of the county where the employer's principal place of business is located for an order enjoining the employer from engaging in further employment until such time as the employer secures the payment of compensation or makes full payment of all civil penalties.

Being out of compliance could make hiring difficult.
Every employer who has secured compensation under the provisions of this act shall keep posted in a conspicuous place in and about the employer's place of business typewritten or printed notices in accordance with a form prescribed by the Commission. The notices shall state that the employer has secured the payment of compensation in accordance with the provisions of this act.
Who is an Employee?

Section 2 18 b. (5)

b. The term "employee" shall not include:

(5) any person employed by an employer with five or fewer total employees, all of whom are related within the second degree by blood or marriage to the employer, if all of whom are dependents living in the household of the employer, or all of whom are a combination of such relatives and dependents. If the employer is not a natural person or a general or limited partnership, or an incorporator of a corporation if the corporation is the employer such relative shall be related within the second degree by blood or marriage to a person who owns fifty percent (50%) or more of the employer, or such dependent shall be in the household of a person who owns fifty percent (50%) or more of the employer,
Section 40 . B 5

5. The Commission may assess a fine against an employer who fails to secure the payment of compensation in an amount up to One Thousand Dollars ($1,000.00) per day of violation payable to the Workers' Compensation Commission Revolving Fund, not to exceed a total of Fifty Thousand Dollars ($50,000.00) for the first violation.
Collections
Section 40 B 7

7. Upon any penalty becoming final under this section, the Commission may institute collection proceedings against any assets of the employer independently or in district court including, but not limited to, an asset hearing, garnishment of income and wages, judgment lien, or an intercept of an income tax refund consistent with Section 205.2 of Title 68 of the Oklahoma Statutes.
8. Information subject to subsection A or B of Section 4-508 of Title 40 of the Oklahoma Statutes may be disclosed to the employees of the Commission for purposes of investigation and enforcement of workers' compensation coverage requirements pursuant to this title, and such information shall be admissible in any hearing before an administrative law judge of the Commission.
Lunch Break 12:30PM to 1:30PM
Professional Ethical Issues
For Lawyers and Judges

OKLAHOMA WORKERS
COMPENSATION COMMISSION
2019 CONFERENCE

CHIEF JUSTICE NOMA D. GURICH,
SUPREME COURT OF OKLAHOMA
Substance Abuse and Mental Health in the Legal Profession

The Oklahoma Bar Association is made up of over 17,000 lawyers and 300 judges.

There are 2290 senior members in good standing; 65 retired; 15,556 active attorneys and a total number of 18,114 members.

Of 18,033 members in good standing, 66% are male and 34% are female.

In-state active, retired, senior and associate members number 13,634 or 76%, while out of state members in the same categories amount to 24%.
A 2016 study of nearly 13,000 practicing lawyers commissioned by the Hazelden/Betty Ford/ABA Commission on Lawyer Assistance Programs (CoLAP) found that between 21 and 36 percent of lawyers and judges reported problematic alcohol use.

Approximately 28 percent struggle with depression; 19 percent with anxiety and 23 percent struggle with stress, all higher rates than were previously reported.
Applying percentages of those lawyers afflicted nationally with mental health/substance abuse issues as determined by the recent study suggests that as many as 4,000-5,000 Oklahoma lawyers and judges could benefit from mental health and/or substance abuse assistance.
Annual Report
June 30, 2019
Oklahoma LHL

89 Total Cases where services were provided through LHL

Most Frequent Primary Problems:
- Adjustment Disorder
- Substance Abuse
- Anxiety
- Depression
- Job Stress
- Financial Issues
- Feelings of Neglect
- Personal Behavior
- Issues related to Misrepresentation
- Issues related to Excessive Fees

The Oklahoma Bar Association reports that up to 200 cases a year are diverted from formal discipline but only about 5% include a requirement to contact LHL
In 2018, there were 242 new formal grievances opened involving 176 attorneys.

During 2018, there were also 917 informal grievances involving 713 attorneys.

There were also 213 items of general correspondence (mail is not considered to be a grievance).
In 2018, there were five (5) published disbarments, six (6) published resignations, five (5) published suspensions, and one (1) published public censure.

The Court issued one (1) Rule 10 suspension in 2018. The Rule provides a confidential procedure in which the lawyer who suffers from drug or alcohol abuse or mental illness can voluntarily be suspended from the practice of law.

The OBA does not track disciplinary actions based on drug or alcohol abuse.
Typically, cases brought against a lawyer for a first time DUI offense are dismissed, because the criminal offense does not reflect on the attorney’s fitness to practice law.
A recent proposal for the expansion of Oklahoma’s LHL Program and the creation of a Wellness Program was provided to the Supreme Court of Oklahoma by the Lawyers Helping Lawyers Committee.

Recommendations include:

- Establishing a formal program with a full time administrator
- Expanding the service provided beyond 6 counselling sessions or referral for services.
- Adding a requirement that every lawyer is required to attend continuing legal education programs on issues regarding addiction, alcohol abuse and stress
How Oklahoma Law Schools are Helping

The University of Oklahoma College of Law, Oklahoma City University School of Law, and University of Tulsa College of Law all have several well-being initiatives for students, including:

- Informative discussions on wellness
- Guest speakers
- Counseling services
- Meetings with Lawyers Helping Lawyers
The Oklahoma Council on Judicial Complaints receives on average 169 judicial complaints per year.

The vast majority of the complaints are dismissed. Only a few cases a year are referred for discipline or removal from office.

There is no LHL equivalent separate organization for judges.
The Legalization of Marijuana

- Nationally, Eleven (11) States and the District of Columbia have legalized recreational marijuana.*
- Thirty-three (33) States have legalized medical marijuana.
- In December of 2018, the U.S. Farm Bill included a provision which legalized the cultivation of hemp in all fifty (50) States.

2015: Oklahoma legalized medical cannabidiol under limited circumstances and uses.*

2018: Oklahoma adopted State Question 788 (by a 57% to 43% margin), which legalized medical marijuana and allows doctors to recommend cannabis for any medical condition.*

*HB 2154 or “Katie’s Bill,” named after Katie Dodson, 63 O.S. Supp. 2015 §§2-101(23); 2-801, et. Seq.
<table>
<thead>
<tr>
<th>GUIDELINES NEEDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Cannabis Licensing and Regulation</td>
</tr>
<tr>
<td>- Marijuana Business Financing and Taxation</td>
</tr>
<tr>
<td>- Marijuana in the Workplace</td>
</tr>
<tr>
<td>- Advising Clients</td>
</tr>
<tr>
<td>- Evolving Rules of Professional Conduct</td>
</tr>
<tr>
<td>- Personal Use</td>
</tr>
<tr>
<td>- Ownership of a Marijuana Dispensary</td>
</tr>
<tr>
<td>- Rules of Professional Conduct.</td>
</tr>
</tbody>
</table>
• **Colorado:** In 2015, Colorado’s Supreme Court upheld a lower court ruling (*Coats v. Dish Network*) that found that an employer, in this case Dish Network, had the legal right to dismiss an employee based on company policies prohibiting marijuana use for all workers and in accordance with the DFWA.*

Workplace Issues

- **Oklahoma**: 63 O.S. Supp. 2019 §425 contains the following provision:

  B. Unless a failure to do so would cause an employer to imminently lose a monetary or licensing related benefit under federal law or regulations, an employer may not discriminate against a person in hiring, termination or imposing any term or condition of employment or otherwise penalize a person based upon either:
Workplace Issues

- **Oklahoma:** 63 O.S. Supp. 2019 §425 contains the following provision:

  1. The person's status as a medical marijuana license holder; or

  2. Employers may take action against a holder of a medical marijuana license holder if the holder uses or possesses marijuana while in the holder's place of employment or during the hours of employment. Employers may not take action against the holder of a medical marijuana license solely based upon the status of an employee as a medical marijuana license holder or the results of a drug test showing positive for marijuana or its components.
Oklahoma: 63 O.S. Supp. 2019 §425 contains the following provision:

C. For the purposes of medical care, including organ transplants, a medical marijuana license holder's authorized use of marijuana shall be considered the equivalent of the use of any other medication under the direction of a physician and does not constitute the use of an illicit substance or otherwise disqualify a registered qualifying patient from medical care.
Advising Clients on Cannabis Laws

Out of the twenty-nine (29) states that legalized medical marijuana before the last election, only one state (Louisiana) has said it is unethical to advise clients in this area.

Although seven (7) have chosen not to amend existing rules to comment on the ethical implications of lawyers advising marijuana clients, twenty-one (21) states have taken action to affirmatively allow lawyers to advise clients on cannabis laws.
Personal use of Marijuana is still a violation of Federal Law

States vary on how they address personal use of recreational or medical marijuana by lawyers:

- **Colorado:** In 2016, a Colorado Bar Formal Ethics Opinion found *no nexus* between the criminal conduct of personal use and a lawyer’s fitness. *

- **California:** The adult use of cannabis, in compliance with California law, as “not contrary” to good morals.

- **Nevada:** Rule 8.4 cautions lawyers that because use and possession “of marijuana in any form still violates federal law, . . . such conduct may result in federal prosecution and [thus] trigger disciplinary proceedings. . . .”

---

**Rule 8.4** prohibits criminal acts, but does so only to the extent such acts reflect adversely on the lawyer’s honesty or fitness as a lawyer.

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*Philip Cherner and Dina Rollman, *Marijuana and Your License to Practice Law: A Trip through the Ethical Rules, Halfway to Decriminalization, 41 J. LEGAL PROF. 19, 31 (2016).*
Participation in Business

The issue of a lawyer’s active participation in the marijuana business is far from settled.

In the only advisory opinion addressing the conduct of a lawyer who actually owns a dispensary in compliance with state law, the Colorado King City Bar Association found no Rule 8.4 violation even though the conduct in question was a felony under the Controlled Substances Act.*

* Philip Cherner and Dina Rollman, Marijuana and Your License to Practice Law: A Trip through the Ethical Rules, Halfway to Decriminalization, 41 J. LEGAL PROF. 19, 31 (2016).
Colorado Advisory Opinion 2014-1:
The committee concluded that a judges’ use of marijuana violates the federal law, and therefore violates the code of judicial conduct even though it does not violate Colorado law.

Alaska Advisory Opinion 2018-1:
A judge’s use of marijuana in violation of federal law “would reflect a lack of respect for the law by showing a selective attitude towards the law suggesting that some are appropriate to follow but others are not.” The public use of marijuana by a judge would create the appearance of impropriety.
• **California Formal Advisory Opinion 2017-10:** Prohibited interests include personal financial investment, ownership or corporate shares, interest in property leased for marijuana growth or distribution including interests of a spouse or domestic partner.

• **New York Advisory Opinion 2018-169:** A judge may not be a founder of or serve as an officer in a business entity that will broker sales of state-licensed marijuana dispensaries in another state, but may be a minority shareholder as a purely passive investor.

• **Washington Advisory Opinion 2015-2:** A judge may not allow a court employee to own a medical marijuana business.
Judges May Be Disciplined for Using Marijuana:

- A judge in Michigan was censured for taking two puffs on a marijuana cigarette that was passed around at a Rolling Stones concert.  
  * In re Gilbert, 668 N.W.2d 892 (Michigan, 2003).

- The Ohio Supreme Court publically reprimanded a judge for self-medicating with marijuana after a stroke.  
  * Disciplinary counsel v. Bowling, 937 N.E. 95 (Ohio 2010).

- A Pennsylvania judge who used marijuana at small gathering of friends at his home was reprimanded after completing rehabilitation and probation.  
  * In re Toczydlowski, 853 a. 2d 24 (PA court of judicial discipline 2004).

Federal Preemption

WHEN GIVEN THE OPPORTUNITY TO RESOLVE THE ISSUE OF FEDERAL AND STATE LAW CONCERNING THE USE OF MARIJUANA, THE U. S. SUPREME COURT DECLINED TO GET INVOLVED.
Nebraska, et al. v. Colorado,
U.S. Supreme Court, 220144 Original; 577 U. S. _____ (2016)

- Colorado legalized medical marijuana in 2001. In 2012, Colorado voters passed Amendment 64, which allows the personal use of marijuana for recreation and creates a system of marijuana growing and marketing across the state, which is taxed and is supposedly regulated closely.

- In December of 2014, Nebraska and Oklahoma sought permission to file an original action against Colorado in the U.S. Supreme court.
Nebraska, et al. v. Colorado,
U.S. Supreme Court, 220144 Original; 577 U. S. ____ (2016)

• The states’ legal complaint was technically based on their status as sovereign members of the Union, and on their claim to the right to have federal laws prevail over contradictory state laws, under the Supremacy Clause of Article VI of the Constitution.

• The complaint contended that no state has the power to “authorize the violation of federal law.” While this scheme is confined within the boundaries of the state, Nebraska and Oklahoma argued that Colorado-sourced marijuana was increasingly showing up in their states, in violation of their anti-drug laws.
“In passing and enforcing Amendment 64, the state of Colorado has created a dangerous gap in the federal drug control measures enacted by the United States Congress. Marijuana flows from this gap into neighboring states, undermining [their] own marijuana bans, draining their treasuries, and placing stress on their criminal justice systems.”
An amici curiae brief was filed in support of this action by Nine Former Administrators (1973-2007) of the Federal Drug Enforcement Agency.

On March 21, 2016, the Supreme Court denied the application for leave to file a complaint.

Two Justices dissented—Justice Thomas and Justice Alito.
Lawyers are advised to proceed with caution in advising clients and in personal use.

Judges should avoid the personal use or investment in businesses related to marijuana.

**THE IMPACT OF THE LEGALIZATION OF MARIJUANA ON THE HEALTH AND WELL-BEING OF THOSE IN THE LEGAL PROFESSION IS YET TO BE DETERMINED.**
Quantifying Healthcare Outcomes
= Better Care @ Lower Costs

Scott Roloff
President, IntegerHealth Technologies
Healthcare Facts

- 5.6% projected average annual increase in health spending over the next decade
- 30% of healthcare costs are due to poor or ineffective care
- 49.5% of personal healthcare spending is on behalf of 5% of the population
U.S. Healthcare Expenditures

- 2018
  - $3.6 trillion
  - 17.8% of GDP
- Growing at 5.6% per year
- 2027
  - $6.0 trillion
  - 19.4% of GDP
Highly Concentrated

- Pareto principle
  - 80/20 rule
  - 80% of the effects come from 20% of the causes
- U.S. personal healthcare spending:
  - 1% of population → 21.8% of costs
  - 5% of population → 49.5% of costs
  - 20% of population → 81.2% of costs
  - 15% of population → 0% of costs
Healthcare Basics
What We Want

• A *Good Outcome*
  • When we get better
  • Sooner, rather than later
  • At a lower overall cost, rather than more

• How do we get a Good Outcome?

*By going to the best doctors & hospitals*
Lake Wobegon* Syndrome

- My doctor is the best (or at least above average)
- My primary care physician (PCP):
  - Knows who the best specialists and surgeons are, and
  - Will only send me to the best
- My specialist or surgeon will only send me to the best hospital

*Lake Wobegon—Where all the children are above average*
Healthcare Costs: Good < Bad

- Good healthcare costs less than bad healthcare
  - Fewer diagnostic and treatment errors
  - Fewer unnecessary procedures
  - Fewer patient complications
  - More rapid patient recovery
- 30% of healthcare costs are unnecessary, the result of poor or ineffective care
- The best providers wring out those excess costs

*But we don’t know how to measure good healthcare*
Claims < Productivity Costs

• Productivity costs of healthcare problems are often more than the claims
  • Absenteeism & Disability
  • Presenteeism—An employee’s inability to perform all the functions of the job because of healthcare problems
• The length of time that a provider takes to get an employee better and back to work doubles as an indication of the effectiveness of the care

But no one includes these productivity costs as a cost of healthcare
Measuring Quality in Healthcare
Inputs vs. Outcomes

Inputs
- Medical & Pharmacy Claims
- Rx Claims
- Price Transparency Tools
- Narrow Networks

Outputs
- Processes, Procedures & Patient Satisfaction Scores
- HEDIS & CAHPS

Healthcare Funnel
Diabetes Myths

Trying to predict the number of days that a diabetic employee misses work based on inputs.

First, using as the input the number of times that the diabetic employee visits their PCP, the theory being that the more often the employee visits, the more they keep their diabetes in check, and the less work that they miss.

In regression analysis you get an \( R^2 \), a number between 0 and 1, 0 being no correlation and 1 being perfect correlation.

When comparing the PCP visits against the days missed the \( R^2 \) was only 0.0269, meaning that the PCP visits explained only 2.69% of the time off—no correlation.

Taking this a step further we compared the number of times a diabetic employee took an A1C test to measure their blood sugar against the days that they missed. This time the \( R^2 \) was 0.0848, still no correlation.
Risk Scores Matter

Risk Score—1.00 individual of average health, below 1.00 healthier than normal, and above 1.00 sicker. The higher the employee's risk score, the more work that the employee misses.
Quantifying Outcomes
Claims + Absence Data

• Combine medical & Rx claims with absence data—Where the outcomes of the claims live
• Define an employee returning to work from their injury as a “good outcome”
  • Having marked that point in time, measure all the costs to get the employee there
  • Claims + absence costs
  • Absence costs double as an indication of the effectiveness of the care—the quicker a doctor got the employee better, the more effective the doctor was
• Rank providers by root diagnosis (i.e. injury)—Average risk-adjusted cost (claims + absence costs) to return an employee to work
Risk Adjust | Comorbidities

• Calculate a risk score for each employee
• Sicker employees cost more
  • An older diabetic employee with a back injury will cost more, and take longer to recover, than
  • A younger and otherwise healthy employee with the same back injury
• Provider rankings are therefore based on the providers’ performances, not the employees that they treated
Sort & Allocate Costs

- Sort providers:
  - Primary Care Physicians (PCPs)
  - Specialists
  - Surgeons
  - Institutions (e.g. hospitals)
- Allocate to each provider:
  - Direct costs
  - Physicians—Indirect downstream costs from referrals too
- Remove outliers from ranking calculations (3+ standard deviations from the mean)
Back Specialists: Average Claims

[Bar chart showing average claims for various back specialists, with Specialist #14 having significantly higher claims than others.]
Back Specialists: + Absence Costs
Back Specialists: + Absence Costs
Back Specialists: Risk-Adjusted
Back Specialists: Risk-Adjusted
Back Specialists: Re-Ordered
Back Specialists: Re-Ordered
Claims vs. Absence Costs

This chart compares two knee surgeons against each other and the group of knee surgeons in the employer’s network. Looking at just the claims—which everyone else does—Surgeon B is the best choice.

Looking at the absence costs it’s reversed, and not only are the absence costs a real cost to the employer, but they’re also an indication of the effectiveness of the care.

Combining the claims and absence costs shows that Surgeon A is the best choice, something you would never have seen by just looking at the claims.

IntegerHealth

High Value Healthcare... Lower Costs & Better Care
Provider Quadrants

The Worst Doctors—High claims and their patients miss a lot of work.

The Best Doctors—Low claims and their patients miss only a few days of work.

High Value Healthcare... Lower Costs & Better Care
Math
Claims + HR / TPA Data–Algorithm Logic

Employee with a workers' comp injury

Root Diagnosis
Identify the root diagnosis (back, shoulder, etc.)

Medical Claims
Accumulate all the employee's medical and pharmacy claims associated with the injury

Rx Claims

Employer HR Records
OR
TPA Loss Run & Check Register

Determine the absence costs associated with the injury from: (1) the employer’s HR records (juxtapose the claims dates against the attendance records and value the time off at the employee’s pay rate or a normalized rate), or (2) the TPA’s loss runs and check register

Total Costs
Average Cost per Root Diagnosis

Total Costs
\( \div \) Average Risk Score
\( \div \) Employees Treated

Calculate the average risk-adjusted total cost by root diagnosis for each provider and each treatment pattern

Assign each employee a risk score to level the playing field

Risk Adjust

Sort and allocate the claims and absence costs to both providers and treatment patterns–See “Sorting & Allocating”

Total Costs

Filter

Claims + Absence

High Value Healthcare... Lower Costs & Better Care
Sorting & Allocating

The claims and absence costs for each root diagnosis are sorted by both providers and treatment patterns.

Each physician is allocated both their direct costs and all "downstream" costs (e.g. from direct and indirect referrals).

Providers are sorted by categories.
## Math: Claims + Absence Costs

**Client:** Blinded  
**Condition:** Back Pain  
**Time Frame:** 4 Years (2013-2016)  
**Provider Group:** Non-Surgeon Specialists (31)

<table>
<thead>
<tr>
<th></th>
<th>Employees</th>
<th>Claims</th>
<th>Average Risk Score</th>
<th>Risk Adjusted Claims</th>
<th>Absence Costs</th>
<th>Group Average</th>
<th>Risk Adjusted Absence Costs</th>
<th>Total Risk Adjusted Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Group</td>
<td>214</td>
<td>$481,652</td>
<td>1.197</td>
<td>$402,383</td>
<td>$1,080,597</td>
<td>1.197</td>
<td>$902,754</td>
<td>$1,305,137</td>
</tr>
<tr>
<td>Average per Employee</td>
<td>8.251</td>
<td>$1,880</td>
<td>5.050</td>
<td>4.218</td>
<td>6.098</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialists Above Group Average</th>
<th>Employees</th>
<th>Average Claims</th>
<th>Average Risk Score</th>
<th>Risk Adjusted Claims</th>
<th>Absence Costs</th>
<th>Group Average Risk Score</th>
<th>Risk Adjusted Absence Costs</th>
<th>Total Risk Adjusted Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist #31</td>
<td>5</td>
<td>$8,589</td>
<td>1.056</td>
<td>$8,134</td>
<td>$10,966</td>
<td>1.056</td>
<td>$10,384</td>
<td>$18,518</td>
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<tr>
<td>Specialist #30</td>
<td>4</td>
<td>$2,799</td>
<td>1.000</td>
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<td>$1,131</td>
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<td>10</td>
<td>$4,220</td>
<td>1.144</td>
<td>$3,689</td>
<td>$9,102</td>
<td>1.144</td>
<td>$7,956</td>
<td>$11,645</td>
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<tr>
<td>Specialist #26</td>
<td>4</td>
<td>$1,022</td>
<td>1.326</td>
<td>$771</td>
<td>$14,291</td>
<td>1.326</td>
<td>$10,778</td>
<td>$11,549</td>
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<tr>
<td>Specialist #25</td>
<td>6</td>
<td>$1,722</td>
<td>1.000</td>
<td>$1,722</td>
<td>$9,798</td>
<td>1.000</td>
<td>$9,798</td>
<td>$11,520</td>
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<tr>
<td>Specialist #24</td>
<td>4</td>
<td>$833</td>
<td>1.072</td>
<td>$777</td>
<td>$8,471</td>
<td>1.072</td>
<td>$7,902</td>
<td>$8,679</td>
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<td>$747</td>
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<tr>
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<td>$5,763</td>
<td>1.520</td>
<td>$3,791</td>
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<td>$6,904</td>
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<tr>
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<td>20</td>
<td>$1,689</td>
<td>1.054</td>
<td>$1,602</td>
<td>$5,209</td>
<td>1.054</td>
<td>$4,942</td>
<td>$6,544</td>
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<tr>
<td>Specialist #19</td>
<td>4</td>
<td>$2,019</td>
<td>1.011</td>
<td>$1,997</td>
<td>$4,556</td>
<td>1.011</td>
<td>$4,506</td>
<td>$6,503</td>
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<tr>
<td>Specialist #18</td>
<td>4</td>
<td>$7,823</td>
<td>2.115</td>
<td>$3,699</td>
<td>$5,568</td>
<td>2.115</td>
<td>$2,633</td>
<td>$6,332</td>
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<tr>
<td>Specialist #17</td>
<td>4</td>
<td>$1,332</td>
<td>1.080</td>
<td>$1,233</td>
<td>$5,329</td>
<td>1.080</td>
<td>$4,934</td>
<td>$6,167</td>
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<td><strong>Totals</strong></td>
<td>95</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$345,853</strong></td>
</tr>
</tbody>
</table>

*Moving to Group Average*

- **Total Claims Saved:** $31,270
- **Total Absence Costs Saved:** $30,830
- **Total Cost Saved:** $62,100

---

*IntegerHealth - High Value Healthcare... Lower Costs & Better Care*
Back Specialists

High Value Healthcare... Lower Costs & Better Care
Flipping Orthopedic Surgeons

An employer had two orthopedic surgeons in its network—Surgeon A & Surgeon B. Surgeon A & Surgeon B each did neck surgeries and back surgeries. This chart compares their neck surgeries against each other and the group of orthopedic surgeons in the network. Surgeon A was very good at neck surgeries, and Surgeon B was very bad.

With their back surgeries, however, it was reversed. Surgeon A was very bad at back surgeries, and Surgeon B was very good.

$893,573 Savings by Flipping Surgeons

$371,425

$522,148

If all the employer did was send all Surgeon B’s neck patients to Surgeon A, and all Surgeon A’s back patients to Surgeon B, so that each surgeon only did what they were good at, the employer would have saved almost $900,000 over four years.
Network Design & Care Management
Value

• Rank Providers by Outcomes—Average risk-adjusted cost (claims + absence costs) to return an employee with a specific injury to work

• Network Design—Design the network to include the best providers for each type of injury (or at least eliminate the worst)

• Direct & Manage Care—Case managers send employees to the best providers for what they need
Case Managers
Reporting

• Provider Scorecards
  • Components of the provider’s ranking
  • Compare the provider against other providers treating the same injury

• Specific reports
  • Frequent fliers
  • New employees (before trained)
  • Employees with significant overtime preceding the injury
Predicting & Benchmarking
Official Disability Guidelines

• Tie an injured employee’s case file to ODG
  • At the outset, predict the employee’s time off and costs
  • During the course of the file, compare the employee’s treatment and results against the guidelines:
    • Best practices for that injury
    • Pay claim or flag for review
    • Return to work
Lower Back Sprain

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities:
None
Prediction

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities: None

Average Days Off Work: 45

Average $:
- Indemnity $3,272
- Medical $4,314
- Admin $654
- Total $8,240
+ Diabetes

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities:
- None

Average Days Off Work: 45

Average S:
- Indemnity: $3,272
- Medical: 4,314
- Admin: 654
- Total: $8,240

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities:
- Diabetes
Prediction

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities: None

Average Days Off Work: 45
Average $: Indemnity $3,272, Medical 4,314, Admin 654, Total $8,240

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities: Diabetes

Average Days Off Work: 61
Average $: Indemnity $4,518, Medical 6,006, Admin 853, Total $11,377

IntegerHealth
High Value Healthcare... Lower Costs & Better Care
+ Diabetes + Lawyer

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities:
  None

Average Days Off Work: 45
Average $:
  Indemnity: $3,272
  Medical: 4,314
  Admin: 654
  Total: $8,240

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities:
  Diabetes

Average Days Off Work: 61
Average $:
  Indemnity: $4,518
  Medical: 6,096
  Admin: 853
  Total: $11,377
Prediction

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities: None

Average Days Off Work: 45
Average $:
Indemnity $3,272
Medical 4,314
Admin 654
Total $8,240

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities: Diabetes

Average Days Off Work: 61
Average $:
Indemnity $4,518
Medical 6,006
Admin 853
Total $11,377

Age: 40
DOL Job Class: Medium
State: OK
Injury: Lower Back Sprain
Comorbidities: Diabetes, Lawyer

Average Days Off Work: 130
Average $:
Indemnity $9,894
Medical 8,396
Admin 9,108
Total $27,398
Getting Started
Look-Back, Move Forward

- Model the past 3-5 years of claims and absence data
  - Opportunity for savings per root diagnosis by moving employees from below average providers to average ones
  - Your own data will show the magnitude of your savings opportunity by quantifying outcomes
- If you move forward, you have a 3-5 year head start
Better Care @ Lower Costs

• When employees go to the providers that achieve the best outcomes:
  • Claims go down—Good healthcare costs less overall than bad healthcare
    • 30% of claims are unnecessary, the result of poor or ineffective care
    • The best doctors deliver superior care for less, wringing out those excess costs
  • Absence costs go down—The best providers return their patients to work faster
  • Employees receive better care
YouTube Videos

• Claims + Absence Costs
  https://youtu.be/TKGZ9x_1Q7U

• Claims Only
  https://youtu.be/UnAmVRMRECQ
Contact

Scott Roloff
President
IntegerHealth Technologies
sroloff@integerhealth.com
(817) 849-9402

LinkedIn Profile:
www.linkedin.com/in/scottroloff/

IntegerHealth Technologies
9001 Airport Freeway
Suite 700
Fort Worth, Texas 76180
(817) 849-9400
https://www.integerhealth.com

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Afternoon Break 3:30PM to 4:00PM
Mediations Panel

Jacque Dean
Trey Kouri
Where are the parties in the litigation?
Admitted Accident?

• If so, what body parts?
• If not, what body parts alleged?
• What body parts treated & how?
• Any Treatment pending?
• Is treatment complete, which body parts?
  • Ratings
  • CMM
  • Hardware
  • Medicare?
  • Any unauthorized Treatment from other providers?
Non-admitted?

- Why?
- Defenses?
- Claimant’s response to defenses?
- Unpaid medical bills?
- Another source of payment
- Same questions as admitted.
Other Issues

• Rate
• Overpayment/Underpayment TTD
• Subrogation
• Liens
• New or Old Law
• ALJ
• Work Status
• Voc Rehab
• Wrongful Term
• Resignation
• Other HR Concerns: Retirement/Health Insurance
Process?

- Full & Final All Issues
- Appendix
- MSA
- Dismissal
- Resignation
- Orders RE: Body Parts, Treatment, Unauthorized Treatment, Pre-existing Conditions, Aggravations, Intervening Accidents, Crumbys Denial Order
All of the above should be hashed out Before Mediation.

Mediation is not a discovery process.
All of the above makes up the value (higher or lower) of the settlement
Now let’s talk money.
Lack of incentive
Cocktail Party 5:00PM to 7:00PM
Welcome to Day 2 of the 2019 Workers' Compensation Commission Educational Conference
Oklahoma Workers Compensation Commission Educational Conference, October 2019

Carla Townsend
State Relations Executive, NCCI
Agenda

- Current Climate
  - Workers Compensation
  - Market Overview
- Regulatory Outlook
- Hot Topics in Workers Compensation
- Forecast
  - Mega Claims
  - Game Changers
- NCCI Modernization
Current Climate
Net Combined Ratios
Calendar Year vs. Accident Year as Reported

Source: NAIC’s Annual Statement data
Accident Year information is reported as of 12/31/2018
Includes dividends to policyholders
Oklahoma Combined Ratios

Source: NCCI's financial data through 12/31/2017 and NAIC's Annual Statement data
Oklahoma Workers Compensation Premium Volume

Direct Written Premium in $ Millions

Calendar Year

Source: NAIC’s Annual Statement data
Based on approved rates and loss costs in various jurisdictions from filings using data valued as of 12/31/2016

*Texas uses a classification plan that can vary significantly from other NCCI states, potentially affecting the magnitude of its loss cost in relation to other states.
Regional states are AR, CO, KS, MO, NM, and TX. Based on NCCI’s financial data through 12/31/2017.

Total Benefit Costs in Oklahoma

- Oklahoma: 43% Indemnity, 57% Medical
- Region: 42% Indemnity, 58% Medical
- Countrywide: 42% Indemnity, 58% Medical

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Oklahoma Average Claim Frequency
Frequency per 100,000 Workers—All Claims

- OK: 898 (Lost-Time) + 2,098 (Medical Only) = 2,996
- AR: 2,597
- CO: 4,062
- KS: 3,291
- MO: 3,002
- NM: 3,210
- TX: 2,217

Based on NCCI’s Statistical Plan data
Average Indemnity Claim Severity in the Region

Lost-Time Claim Severity in $ Thousands

Based on NCCI’s financial data
Average Medical Claim Severity in the Region

Lost-Time Claim Severity in $ Thousands

Based on NCCI’s financial data
Regional states are AR, CO, KS, MO, NM, and TX

Based on NCCI’s Statistical Plan data for jurisdiction/claim type combinations for which three or more cases exist

Oklahoma Distribution of Claims by Injury Type

- Oklahoma: 70% Medical Only, 18% Temporary Total, 12% Permanent Partial
- Region: 75% Medical Only, 14% Temporary Total, 11% Permanent Partial
- Countrywide: 75% Medical Only, 15% Temporary Total, 10% Permanent Partial

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Oklahoma Medical Loss Distribution by Injury Type

**Oklahoma**
- Temporary Total: 42%
- Permanent Partial: 25%
- Permanent Total: 8%
- Medical Only: 1%
- Fatal: 1%

**Region**
- Temporary Total: 54%
- Permanent Partial: 8%
- Permanent Total: 13%
- Medical Only: 1%
- Fatal: 1%

**Countrywide**
- Temporary Total: 48%
- Permanent Partial: 8%
- Permanent Total: 13%
- Medical Only: 1%
- Fatal: 1%

Regional states are AR, CO, KS, MO, NM, and TX
Based on NCCI’s Statistical Plan data for jurisdiction/claim type combinations for which three or more cases exist
Forecast
# Court Case Update

## Court Case Update, Countrywide—August 2019

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers Compensation Exclusive Remedy</td>
<td>Challenges to exclusive remedy persist in 2019, with courts largely upholding employer tort immunity under the law.</td>
<td>TX, OK, WI</td>
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<tr>
<td>Challenges to State Adoption of Third-Party Guides (AMA/ODG)</td>
<td>Workers comp cases re: the AMA Guides and ODG are pending in the Kansas and Texas supreme courts.</td>
<td>KS, TX</td>
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<tr>
<td>Marijuana Developments</td>
<td>State marijuana laws continue to evolve with potential impacts for workers comp and the workplace.</td>
<td>FL, OK</td>
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<tr>
<td>Air Ambulance Reimbursement: State vs. Federal Law</td>
<td>Air ambulance ADA preemption cases are still being considered at the state and federal levels.</td>
<td>Fed, KS, TX</td>
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<tr>
<td>Other Federal and State Developments</td>
<td>Workers comp continues to be affected by court rulings at the state and federal level.</td>
<td>Fed, MD, KY, FL, IA, MO, KS, ID, TX, AZ</td>
</tr>
</tbody>
</table>
Hot Topics in Workers Compensation

- Legalization of Marijuana
- Prescription Drugs
- Single Payer
- Air Ambulances
Mega Claims | Definition

MEGA CLAIMS

$10 MILLION
paid or expected
to be paid
The most dangerous jobs are found in these groups.
30% of all lost-time claims come from these hazard groups

Yet they account for 70% of all mega claims
Mega claims occur most commonly in the **Contracting Industry Group**

- **Lost-Time Claims**
- **Mega Claims**
Mega Claims | Top Five Classes

- Carpentry (HG F)
- Salespeople (HG E)
- Clerical (HG C) accounts for 30% of all payroll
- Trucking (HG F)
- Roofing (HG G)
Mega Claims | Part of Body

- Neck, spine, head, brain (57%)
- All other (5%)
- Multiple body parts (37%)
Mega Claims | Causes of Claims

#2 Cause
Fall from elevation
28%

#3 Cause
Struck by object
14%

All other causes combined
20%
Mega Claims | Causes of Claims

#1 Cause  Motor Vehicle Accidents
Mega Claims | Motor Vehicle Accidents (MVA)

Top 30 MVA Classes 2011–2016

12.0% MVA claim frequency

Lost-time claim frequency 12.8%
Mega Claims | MVA Frequency

2011–2015

Taxicab

Classification

- Largest increase in MVA frequency occurred
- MVA frequency more than doubled in this time frame
Mega Claims | Factors Affecting Frequency

- Increase in overall miles driven since the Great Recession
- Distracted driving
- Smartphone usage
- Recreational marijuana legalization
Game Changers

- Autonomous vehicles
- The gig economy
- Telehealth/wearables
- Universal healthcare
Unified Adaptive Content (UAC)
Shattering the Way We Deliver Content
Unified Adaptive Content (UAC)

Stakeholder-Focused Strategies

**Regulators**
- Easier filing process
- Content availability
- Statutory concerns

**Carriers**
- Content access
- Information delivery
- Answer the question

**Agents**
- Answers
- Content Access

**Others**
- Access
Thank you.

Carla_Townsend@ncci.com

Ph: 561-893-3819
Marijuana: A Tale of Two Patients

Kelly Dunn, M.D.
Assistant Clinical Professor
Medical Director for Student and Resident Wellness
Department of Psychiatry and Behavioral Sciences
Division of Addiction Medicine
Oklahoma State Center for Health Sciences
Disclosures

• I have no financial disclosures.
• I am solely and exclusively presenting in my capacity as an individual and not representing or attempting to speak on behalf of OSU or the OSU-CHS
Objectives

• Learn about the complex components of the Cannabis plant
• Review the research on how marijuana affects the individual
• Define the risks and benefits of marijuana use
• Understand treatment for Cannabis Use Disorder
“It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to Heaven, we were all going direct the other way—in short, the period was so far like the present period, that some of its noisiest authorities insisted on its being received, for good or for evil, in the superlative degree of comparison only.”

-Dickens, *A Tale of Two Cities*. 1859
A Tale of Two Patients
History

- Use dates back over 12,000 years
- Recreational use of cannabis began to surge in the 1930’s
- Was recognized as medication and listed in the U.S. Pharmacopoeia from 1850-1942

- Medicinal use was abolished in 1937 by enactment of the Marijuana Tax Act
- Placed in Schedule I of the US Controlled Substances Act in 1970
**DEA Scheduling**

- **“Schedule I drugs**, substances, or chemicals are defined as drugs with no currently accepted medical use and a high potential for abuse.
  - LSD, heroin and MDMA

- **Schedule II drugs**, substances, or chemicals are defined as drugs with a high potential for abuse, with use potentially leading to severe psychological or physical dependence. These drugs are also considered dangerous.” (DEA.gov)
  - Combination products with less than 15 milligrams of hydrocodone per dosage unit, cocaine, methamphetamine, methadone, hydromorphone (Dilaudid), meperidine (Demerol), oxycodone (OxyContin), fentanyl, Dexedrine, Adderall, and Ritalin

- **Marijuana is Schedule 1**
  - This makes access to the drug for scientific study more difficult
Data from the National Survey of Drug Use and Health 2016

• 24 million Americans ages 12 and older were current users of marijuana
• Past month users of marijuana corresponds to 8.9% of the U.S. population
  • 1.6 million (6.5%) of adolescents ages 12 to 17 were current users of marijuana
  • 7.2 million (20.8%) of young adults ages 18 to 25 were current users of marijuana
  • 15.2 million (7.2%) of adults 26 years of age and older were current users of marijuana

SAMHSA 2017. Results from the 2016 NSDUH: Volume 1.
More Epidemiology

• Daily marijuana use (6%) was higher than daily cigarette use (4.6%) in 2016\(^1\) among high school seniors

• In 2010, ED visits for marijuana-related clinical problems increased by 64% or 179,409 more visits than 2004\(^2\)

1. NIDA Monitoring the Future Study, 2016
2. SAMSHA Dawn Report, 2012
Cannabis – a complex plant

- Over 400 chemical entities

**THC**
Delta-9-tetrahydrocannabinol
MOA: partial CB1R agonist
Psychoactive component

**CBD**
Cannabidiol
MOA: Unknown
Not Psychoactive
Cannabis – a complex plant

INDICA

↑ CBD

SATIVA

↑ THC

THC

CBD

https://stuffstonerslike.com/sativa-vs-indica/
Concentration of THC varies among preparations

• Marijuana
  • Dried flowering tops and leaves of the harvested plant
  • Potency decreases through the upper leaves, lower leaves, stems and seeds
  • Concentrations containing mostly leaves and stems range from 0.5% to 5% THC
  • “Sinsemilla” – the flowering tops from unfertilized female plants may have THC concentrations from 7% - 14%

• Hashish
  • Dried cannabis resin and compressed flowers
  • THC ranges from 2%-8%
Concentration of THC varies among preparations

- **Hash Oil**
  - Obtained by extracting THC from hashish (or MJ) with an organic solvent
  - THC concentration ranges from 15%-50%

- **Dab**
  - Extraction of THC with Butane products produces BHO
  - THC concentration can reach up to 90%
  - Production associated with severe burns and lung injury

- **Hemp**
  - Fibrous form
  - Low THC content, generally <0.4%
  - Usually high cannabidiol content
Route of Administration

• Usually smoked
  • Rolled into cigarette paper = joint
  • Water pipe = bong
  • Cigars hollowed out and filled with MJ = blunts
  • Tobacco cigarettes will have hashish oil dripped on them

• Edibles
• Vaporized
• Teas
• Sub-lingual/Oromucousal
• Suppository
Current formulations

• Oral preparations – with FDA indications
  • synthetic THC (dronabinol, Marinol®)
    • Appetite stimulant for HIV/AIDS
    • Anti-emetic for chemotherapy induced nausea and vomiting
  • synthetic analog of THC (nabilone, Cesamet®)
    • Chemotherapy induced nausea and vomiting

• Nabiximol's (Sativex) – mouth spray approved in UK with standardized THC/CBD dosing
Metabolism

- THC is deposited into fatty tissue and slowly released
- There is lack of correlation between blood concentration and pharmacologic effects

Active THC → CYP2C9 → Active metabolite 11-OH-THC → CYP2C9 → Inactive metabolite THC-COOH

Rapidly Metabolized  Detected in urine
Endocannabinoid System

AEA
Anandamide

Release from postsynaptic sites to work on presynaptic CB1 receptors to maintain homeostasis and prevent excessive neuronal activity

The are rapidly removed from the extracellular space

2-AG
2-Arachidonylglycerol
CB1 Receptors

- Mainly in the brain
- Also PNS, liver, thyroid, uterus, bones and testicular tissue, placenta

Activation results in changes in multiple neurotransmitter systems

CB2 Receptors

- Mostly expressed in immune cells, spleen, GI system
- Some brain and PNS, placenta

CB-like receptors...........
Not your Momma’s Marijuana

- Advances in cultivation techniques and grower knowledge have produced vastly more potent marijuana
- THC concentration has increased from 0.5% in 1970 to 10.6% in 2010
- CBD concentration has fallen
- The variable chemistry makes it challenging to study
- Much of the research on cannabis studied lower potency MJ and therefore may not be as applicable
Because marijuana is illegal, I won't see my mommy for 12 years...

Because marijuana is illegal, I will live a life of pain...

Because marijuana is illegal, I will watch my brother die...

Because marijuana is illegal, people all over the world are suffering.

Plant the seed of cannabis education today!

Seed: made by God

Cultivating Compassion by Georgia

www.georgiatoons.com
Intoxication

• Euphoria
• Perceptual alterations
  • Time distortion
  • Intensification of ordinary experiences
• Infectious laughter
• Talkativeness/Friendliness
• Motor skills impairment
• Conjunctival injection
• Slurred Speech
• Memory impairment
High dose/Overdose

- On the rise – usually ingested
- Panic, Delirium, Sedation, confusion, tachycardia, chest pain, hypotension
- Potential for severe respiratory depression
- The groups most commonly admitted for treatment are those <5 years old and those in the 15-19 year-old-group.
- Sudden cardiac arrest has been reported in a small number and often associated when ingested in combination with other drugs

The ASAM Principles of Addiction Medicine, 6th ed.
Intoxication Delirium

• Occurs at higher doses of THC
• Perhaps even at low doses in susceptible individuals
• Produces **visual and auditory hallucinations**, delusional ideas, thought disorders in normal users
Withdrawal

- Dose Dependent
- Duration of use dependent
- Symptoms
  - Anger
  - Anxiety
  - Depression
  - Irritability
  - Insomnia
  - Appetite Loss
  - Weight Loss
- Especially 10 days following cessation
Adolescent use

- **Sensitive Window** of Development
  - Neurobiological circuits are pruned and reinforced
  - Sensitive to rewards and limited inhibitory structures
  - Increased risk for psychosis

- First use of cannabis typically begins in the mid- to late teenage years

- Heaviest use typically occurs in the early 20s
Adolescent use

• Associated with low academic achievement and increased rates of school drop-out

• Fergusson et al performed a longitudinal study of over 1,000 New Zealanders from birth to age 25 years of age
  • Elevated marijuana use between ages 14 and 21 was associated with lower likelihood of getting a bachelor’s degree, lower income, higher unemployment and welfare dependence, lower levels of relationship and life satisfaction
  • These correlates survived adjustments for covariates, including socioeconomic status, maltreatment and comorbid mental disorders

• Disruptions in cognitive function may persist longer and may not be recoverable, especially as a result of adolescent use
Systemic Effects

https://www.healthline.com/health/addiction/marijuana/effects-on-body#4
CNS Effects

• Both THC, but more so CBD, have anticonvulsant effects
• THC>CBD muscle relaxant

• According to the American Academy of Neurology, medical marijuana may be considered an alternative treatment for MS-related spasticity
  • Compared to placebo, patients who received MM had significant adverse effects, primarily cognitive impairment

• Also the AAN state cannabis extracts are probably ineffective for levodopa induced dyskinesia in patients with Parkinson’s disease but may improve sleep and pain in these patients.

• Behavioral disturbances associated with dementia?
• High doses lead to sedation and ataxia
Cognition

• Short-term Effects
  • THC causes problems with short-term memory, sensory perception, sense of time, attention span, problem solving, verbal fluency, psychomotor control

• Long-term Effects
  • Growing research to suggest subtle effects may persist after discontinuation
  • Functional imaging studies have shown less activity in brain regions in memory and attention in chronic marijuana users than in non-users, even after 28 days of abstinence
  • Long-term marijuana users have been shown to have reduced volumes of the hippocampus and amygdala
Driving

• Driving while under the influence of marijuana **doubles or triples** the risk of a crash:
  • Increases lane weaving, impairs critical-tracking tasks, reaction time and divided attention

• Although users can develop tolerance, they still can manifest impairment when there is a need to adaptively respond to sudden unexpected emergencies

• The combination of **alcohol and marijuana** produces levels of impairment greater than their independent sum
Lungs

• Inhaled marijuana causes respiratory irritation
• Users are at increased risk of both acute and chronic bronchitis
• Pound for pound, the quantity of tar inhaled through smoking MJ is greater than from smoking tobacco
• Cannabis smoke has shown to cause metaplastic changes in respiratory epithelium and may increase risk of lung cancer and head and neck cancer – but more research is needed

Taylor, Fergusson et al. 2002
Mehra, Moore et al. 2006
Cardiovascular

• CBD can cause bradycardia and hypotension
• THC can cause tachycardia and hypertension → increase workload
• Mittleman, et al (2001) studied 3882 patients who had heart attacks showed that in the hour after smoking MJ users were 4.8-fold more likely than non-users to have heart attacks
• Both are strong **antiemetics**
  - Chemotherapy-induced nausea and vomiting
• THC > CBD slowed GI motility
• THC stimulates appetite
  - AIDS associated anorexia
• THC might have negative metabolic effects
• Some small studies show improvement in symptoms of Crohn’s, but effects do not last and sample size is small and worse prognosis
• **Cannabinoid hyperemesis** is a clinical syndrome characterized by repeated vomiting and associated learned compulsive hot water bathing behavior
Ophthalmologic

- THC > CBD reducing intraocular pressure
- The American Academy of Ophthalmologists does not recommend treating glaucoma with MM because the effect is short-lasting and MM causes cognitive impairment when compared to other standardized treatments
- MM can also lead to decreased blood pressure which lowers blood flow to the optic nerve and may increase risk of blindness
Cancer

• Cannabis smoke produces mutations in cells in the test tube and in live animals and hense is a potential cause of cancer, especially aerodigestive tract cancers

• New Case Studies report increased risk of testicular cancer (nonseminoma) among cannabis users
Cancer

- A laboratory study of CBD in human glioma cells showed that when given along with chemotherapy, CBD may make chemotherapy more effective and increase cancer cell death without harming normal cells.

- Studies in mice and rats have shown that cannabinoids may inhibit tumor growth by causing cell death, blocking cell growth, and blocking the development of blood vessels needed by tumors to grow. Laboratory and animal studies have shown that cannabinoids may be able to kill cancer cells while protecting normal cells.

- Animal/Laboratory research: Breast cancer, colon cancer, hepatocellular cancer, non-small cell lung cancer

- “At this time, there is not enough evidence to recommend that patients inhale or ingest Cannabis as a treatment for cancer-related symptoms or side effects of cancer therapy” (cancer.gov)
Reproductive and Peri-natal effects

• **Animal studies**: MJ/THC have shown to effect secretion of reproductive gonadotrophin hormones, sperm production and capacitation, ovulation, fertilization, early embryonic development, implantation, placental functions, fetal growth, number of pregnancies carried to term, lactation, suckling behavior by newborns and growth of malignant breast and prostate cells.

• Compounds in smoked marijuana **cross** the placenta and pass into **breast milk**

• Low birth weight, developmental delay, behavioral problems, stillbirth

• ACOG encourages **MJ cessation** during pregnancy and breastfeeding
Pain

• Several small studies have demonstrated analgesic effects of THC and CBD
  • can improve central and peripheral neuropathic pain
  • pain associated with rheumatoid arthritis and fibromyalgia

• In an RCT of 39 patients w/ complex regional pain syndrome, thalamic pain, spinal cord injury, peripheral neuropathy, radiculopathy or nerve injury, a 30% pain reduction was found in
  • 26% of those in the placebo group
  • 57% in the low-dose group (1.29% THC)
  • 61% in high-dose group (3.53% THC)
Pain

- Likely safer than opioids – hard to overdose on, less addictive
- Alternative to NSAIDs which bring their own complications
- a trial employing an experimental model of neuropathic pain (intradermal injection of capsaicin) in healthy volunteers suggested that there may be a “therapeutic window” or optimal dose for smoked cannabis: low dose cigarettes (2% THC) had no analgesic effect, high dose (8%) was associated with reports of significant pain increase, and medium dose cannabis cigarettes (4% THC) provided significant analgesia
Pain

• Some benefit in headache syndromes
• A recent randomized trial suggests highly-structured approaches may result in successful analgesia and restoration of function without aberrant opioid use in “high risk” patients prescribed opioids for chronic pain
• Campbell et al. 2018 showed “no evidence that cannabis use reduced pain severity or interference or exerted an opioid-sparing effect” in a 4 year prospective cohort study.
Reciprocal model of pain and substance use

Effects of substance use on pain
- Acute analgesia
- Abstinence-induced hyperalgesia
- Risk for developing chronic pain

Effects of pain on substance use
- Pain as a motivator of substance use
- Use of substances to cope with pain
- Pain as a barrier to cessation
- Risk for developing substance-related disorders

Potential mechanisms and moderators
- Negative reinforcement
- Allostatic load
- Substance-related outcome expectancies
- Pain coping self-efficacy
- Pain severity/persistence/impairment
- Pain-related distress/negative affect
- Prescription opioid efficacy/misuse
- Sociodemographic and medical factors

Comorbid psychopathology
- Anxiety and depression
- Posttraumatic stress
- Other substance-related disorders

Candidate transdiagnostic factors
- Anxiety sensitivity
- Distress intolerance
- Pain-related anxiety
- Pain catastrophizing

Joseph W. Ditre, Emily L. Zale, and Lisa R. LaRowe
Addiction

• THC has been shown to stimulate mesolimbic dopamine release

• Adolescent initiators are 2 to 4 times more likely to exhibit dependence within two years of their first use, up to 17%

• Withdrawal syndrome: anorexia, irritability, anxiety, depression, anger, restlessness and sleep disruption – especially the first 10 days
Addiction

• Tolerance may develop as quickly as 2-12 days of repeated use
• Intoxication alone is not deadly
• Harm and risk reduction vs. **Gateway drug**
• Nine percent of first-time cannabis users gets hooked
Cannabis Use Disorder

**DSM-V Criteria for a Substance Use Disorder**

The *Diagnostic and Statistical Manual 5* defines a *substance use disorder* as the presence of at least 2 of 11 criteria, which are clustered in four groups:

<table>
<thead>
<tr>
<th>Impaired Control</th>
<th>Risky Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Taking more or for longer than intended</td>
<td>1. Recurrent use in hazardous situations</td>
</tr>
<tr>
<td>2. Unsuccessful efforts to stop or cut down use</td>
<td>2. Continued use despite physical or psychological problems that are caused or exacerbated by substance use</td>
</tr>
<tr>
<td>3. Spending a great deal of time obtaining, using, or recovering from use</td>
<td></td>
</tr>
<tr>
<td>4. Craving for substance</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Impairment</th>
<th>Pharmacologic Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Failure to fulfill major obligations due to use</td>
<td>1. Tolerance to effects of the substance</td>
</tr>
<tr>
<td>2. Continued use despite problems caused or exacerbated by use</td>
<td>2. Withdrawal symptoms when not using or using less</td>
</tr>
<tr>
<td>3. Important activities given up or reduced because of substance use</td>
<td></td>
</tr>
</tbody>
</table>
Cannabis Use Disorder Treatment

• In 2012, among Americans who reported using cannabis at least once, over 13% reported criteria supported cannabis abuse or dependence

• **Females** who use cannabis were more likely than males to develop a cannabis disorder

• Treatments for CUD are in the developmental stage
  • Cannabinoids
    • Rimonabant – CB1 Receptor Antagonist
  • Non-Cannabinoids

1. SAMSHA. Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings. Rockville, MD. 2013
2. Wagner FA, Antohny JC. Male-female differences in the risk of progression form first use to dependence upon cannabis, cocaine and alcohol. Drug Alcohol Depend. 2017
Mental Health

• Pot-psychosis link
  • THC contributes to the **development and expression** of psychotic illness, especially in **vulnerable populations**
  • Appears dose-dependent based on systematic review by Zammit et. Al.
  • Once a psychotic disorder has developed, THC may make it **worse**
    • Earlier onset of symptoms, more severe and persistent psychotic symptoms, higher relapse rates and a worse prognosis due to poor treatment adherence
    • Brain volume loss significantly greater in schizophrenics who use MJ
  • Hall et. al document that cannabis use **doubles** the risk of developing psychosis from 7 in 1,000 to 14 in 1,000.
  • However, high **CBD** cannabis has been associated with fewer psychotic experiences
A Word about Psychosis

What’s the big deal?

1. Loss of connectivity to reality can be emotionally terrifying
2. Psychosis can stimulate unsafe behavior
3. Mounting evidence that psychosis itself is harmful to the brain
Mental Health

- Depression & Anxiety
  - THC: Anxiogenic
  - CBD: Multiple studies have shown anxiolytic effects
  - Study of hair samples of daily users, those with higher THC levels were associated with increased depression and anxiety as well as poorer memory
  - “Paradoxical reaction” – dejection, dysphoria, depressed mood
  - Marijuana Amotivational Syndrome
- Withdrawal also causes mood issues, which may be improved with MJ, thus making it appear it treats mood problems
Mental Health

• PTSD
  • Some promising research that cannabinoids may facilitate the extinction of *aversive memories*
  • Small studies in veterans report *improved PTSD symptoms and sleep*
  • *Strong Association* between cannabis use and PTSD, more research needed on causation
  • Those with PTSD at higher risk for comorbid disorders
A Tale of Two Patients
Legal Issues

• In states where medical marijuana is legal, you can receive a medical card from a physician which authorizes you to buy marijuana from specific dispensaries
• MM States generally have lists of qualifying conditions
• Dispensaries not subject to governmental standardization, and its constituents and potency are consequently unknown
Legal Issues in Oklahoma

• Oklahoma State Question 788 passed and emergency rules in place
  • 18 years or older may posses a marijuana license
  • Same regulations as Smoking Tobacco in Public
  • No limit on THC content.
  • Smokable MJ allowed.
  • No list of qualifying conditions

• The possession and use of marijuana is still prohibited under federal law
Treatment

- Cannabis Intoxication
  - Psychotic? → Safety. COPES (744-4800), 911
  - Reassurance and support

- Cannabis Dependence
  - Psychosocial Treatment
  - Cognitive Behavioral Therapy
  - Treat comorbid addictions
  - Treat comorbid psychiatric conditions

- Where?
  - SAMHSA (Substance Abuse and Mental Health Services Administration) Website
  - 211 – Eastern Oklahoma Services
  - Call Insurance Company
Summary

- Cannabis contains an extensive number of pharmacological and biochemical compounds, of which only a minority are understood, so many potential therapeutic uses remain undiscovered.

- Changes in potency of marijuana, variance of components, delivery systems make applicable marijuana research limited.

- Schedule I appears to be inconsistent with growing evidence of potential medicinal purposes of cannabis.

- Public health burden of cannabis is probably modest compared to that of alcohol, tobacco, and illicit drugs ... but studies are limited.

- There is currently narrow empirical basis for efficacy compared to standard treatments.
Summary

• CBD products have been legal in Oklahoma.
• MM is now legal in Oklahoma and under emergency rules until the Spring.
• MJ is not a good option for vulnerable populations, such as adolescents and those with mental illness or risk factors for mental illness.
• Like standard treatments, there are risk and benefits and patients should undergo informed consent
• Treatment is available for those who become dependent on marijuana
Cannabis: NOVEL THERAPY? HARMFUL DRUG?
References

Atakan Z. Cannabis, a complex plant: different compounds and different effects on individuals. Therapeutic Advances in Pharmacology. 2012;2(6):231-254


Block, O’leary et al. 2002

References


References


References


References


References


Morning Break 10:00AM to 10:15AM
David E. Nonweiler, MD
Shoulder, Hand, Wrist, Knee, Ankle, Sports Medicine and Knee Total Joint Replacement
Do You Want a Robot to do Your Surgery?
DAVID E. NONWEILER, M.D.

CENTRAL STATES ORTHOPEDIC SPECIALISTS a division of ADVANCED ORTHOPEDICS of OKLAHOMA

918-481-2767
918-625-8837 cell
Really??? A Robot???
FAMILY
LATER THAT NIGHT
Do You Want a Robot to do Your Surgery?

- Objectives
  - 1. A summary of the latest surgical advances in orthopedics
  - 2. Understand how technology and robotics are uniquely suited to orthopedics
  - 3. Discuss how these advances improve patient outcomes
History of Technology

• Moore’s Law: the doubling of computer processing speed every 18 months
  – Transistors per square inch on integrated circuits
  – Intel computer chip 10 nanometers
  – Limits?
History of Technology

Human Intuitive Perspective of Technological Advancement in Twenty Years
A Million Times More Advanced

Increase in our Current Technological Ability

Number of Years in the Future

© Theemergingfuture.com
History of Technology

1. The accelerating pace of change...
   - Agricultural Revolution: 8,000 years
   - Industrial Revolution: 120 years
   - Light-bulb: 90 years
   - Moon landing: 22 years
   - World Wide Web: 0 years
   - Human genome sequenced

2. ...and exponential growth in computing power...
   - Computer technology, shown here climbing dramatically by powers of 10, is now progressing more each hour than it did in its entire first 90 years.

3. ...will lead to the Singularity
   - Apple II: At a price of $1,298, the compact machine was one of the first mass-produced personal computers.
   - UNIVAC I: The first commercially available computer, used to tabulate the U.S. Census, occupied 943 cubic feet.
   - Power Mac G4: The first personal computer to deliver more than 1 billion floating-point operations per second.

4. Computer Rankings
   - By calculations per second per $1,000
   - Analytical engine (Never fully built, Charles Babbage's invention was designed to solve computational and logical problems)
   - Colossus (The electronic computer, with 1,500 vacuum tubes, helped the British crack German codes during WWII)
   - UNIVAC I
   - Apple II
   - Power Mac G4

5. Timeline:
   - 1900
   - 1920
   - 1940
   - 1960
   - 1980
   - 2000
   - 2045

6. Surpasses brainpower of human in 2005
   - Surpasses brainpower of mouse in 2015

7. 2045: Surpasses brainpower equivalent to that of all human brains combined
History of Technology

• "The Singularity" means that bio, nano, robotic and computer technology will become so rapid, so advanced, and so profound that today's limited understanding does not allow us to describe, within reason, what life will be like.

• Kurzweil's prediction

• This will occur by 2045?
History of Technology

• Kurzweil
  – Solar power for the entire world
  – Interstellar travel
  – Nanotechnology allows robots to repair damaged aging tissue
History of Technology
Do You Want a Robot to do Your Surgery?

- Advances in Orthopedics have not been technology driven
  - Laser
    - Cosmetic – tattoos
    - Eye surgery
    - Dental
    - General surgery
  - Not meniscus
Do You Want a Robot to do Your Surgery?

- Robotics has changed that in the total joint world
- Total joints mesh well with computers and robotics
  - precision
  - alignment
Do You Want a Robot to do Your Surgery?

• Alignment is so important in the long term survival of joints
• Want a line from the center of the hip to the center of the ankle to pass through the center of the knee
Do You Want a Robot to do Your Surgery?

- Unequal pressure causes unequal wear
- Premature failure in the area of increased force
- “Prevented” by perfect alignment and balance of the replaced joint
Unequal pressure causes poor patient outcomes.
Do You Want a Robot to do Your Surgery?

- Easy right?
- Knees flex and extend
- Must balance in both
- Flexion instability
Do You Want a Robot to do Your Surgery?

- Total knee replacement
  - Put rods in the bone or along the outside of the bone for alignment
  - Not ideal
  - Good for alignment (not great)
  - No help for stability (surgeon)
Do You Want a Robot to do Your Surgery?

- Total knee replacement
  - Stability of the knee was determined by surgeon stressing the joint in surgery
  - No objective measurements, no implant adjustment prior to the bone cuts
  - Released ligaments to balance the knee
  - “That is good”
Do You Want a Robot to do Your Surgery?

• Total knee replacement - Stability
Do You Want a Robot to do Your Surgery?

- Search for ways to improve alignment
  - Computer guidance
  - Helped with alignment
  - Did not address stability
Do You Want a Robot to do Your Surgery?

- MAKO Robotic Assisted Total Knee Replacement
  - Helped accurate alignment
  - Helped stability with ligament balance in flexion and extension
  - Can change placement of knee replacement intra operatively to optimize position (i.e. balance and stability)
  - Robot assists obtain extremely precise bone cuts
Do You Want a Robot to do Your Surgery?

• MAKO Robotic Assisted Total Knee Replacement

• HUGE

• GAME CHANGER
Do You Want a Robot to do Your Surgery?

- MAKO Robotic Assisted Total Knee Replacement
  - Now objective measurements for alignment and stability of the knee
  - No guessing
  - No depending on the “feel of the joint”
  - Still important but used to confirm
Do You Want a Robot to do Your Surgery?

- MAKO Robotic Assisted Total Knee Replacement
- Huge technological advancement
- Available since June 2017
- Only available in two hospitals in Tulsa – OSH and the hospital..
- Only five surgeons in Tulsa
Robotic Assisted TKA

• Steps: Before surgery
  – CT scan - computer model of the knee
  – Initial plan of component placement

• Steps: In surgery
  – Place arrays – computer can “see” knee
  – Register the knee – computer knows where the knee is in space
  – Measure the ligament laxity
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – Critical step
  – Use robotic arm to make the cuts
Robotic Assisted TKA

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Robotic Assisted TKA

- Steps: before surgery
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Robotic Assisted TKA

• Steps: before surgery
  – CT scan-computer model of the knee
Robotic Assisted TKA

- Steps: before surgery
  - CT scan-computer model of the knee
Robotic Assisted TKA

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  – Initial plan of component placement
Robotic Assisted TKA

- **Steps: before surgery**
  - Initial plan of component placement
Robotic Assisted TKA

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  – Use robotic arm to make the cuts
Robotic Assisted TKA

- Necessary equipment
Robotic Assisted TKA

- Steps: In surgery
- Set up
Robotic Assisted TKA

• Steps: In surgery
  – Place arrays – computer can “see” knee
  – Register the knee – computer knows where the knee is in space
  – Measure the ligament laxity
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – Critical step
  – Use robotic arm to make the cuts
Robotic Assisted TKA

- Steps: In surgery
  - Place arrays – computer can “see” knee
Robotic Assisted TKA

• Steps: In surgery
  – Place arrays – computer can “see” knee
  – Register the knee – computer knows where the knee is in space
  – Measure the ligament laxity
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – Critical step
  – Use robotic arm to make the cuts
Robotic Assisted TKA

- Register the knee
Robotic Assisted TKA

• Steps: In surgery
  – Register the knee – computer knows where the knee is in space
  – Link the computer model and the actual knee
Robotic Assisted TKA

• Steps: In surgery
  – Register the knee – computer knows where the knee is in space
Robotic Assisted TKA

• Register femur
Robotic Assisted TKA

• Register tibia
Robotic Assisted TKA

• Steps: In surgery
  – Place arrays – computer can “see” knee
  – Register the knee – computer knows where the knee is in space
  – Measure the ligament laxity
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – **Critical step**
  – Use robotic arm to make the cuts
Robotic Assisted TKA

- **Steps:**
  - In surgery
  - Measure the ligament laxity
Robotic Assisted TKA

• Steps: In surgery
  – Place arrays – computer can “see” knee
  – Register the knee – computer knows where the knee is in space
  – Measure the ligament laxity
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – Critical step
  – Use robotic arm to make the cuts
Robotic Assisted TKA

• Steps: In surgery
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – **Critical step**
  – Unique ability of this system
Robotic Assisted TKA

• Implant adjustment
Robotic Assisted TKA

• Steps: In surgery
  – Place arrays – computer can “see” knee
  – Register the knee – computer knows where the knee is in space
  – Measure the ligament laxity
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – Critical step
  – Use robotic arm to make the cuts
Robotic Assisted TKA

- Steps: In surgery
  - Use robotic arm to make the cuts
Robotic Assisted TKA

• Steps: In surgery
  – Use robotic arm to make the cuts
Robotic Assisted TKA

• Steps: In surgery
  – Use robotic arm to make the cuts
Robotic Assisted TKA

• Robotic cuts
Robotic Assisted TKA

• Final
Robotic Assisted TKA

- Final
Robotic Assisted TKA
Do You Want a Robot to do Your Surgery?

- Alignment is so important in the long term survival of joints
- Want a line from the center of the hip to the center of the ankle to pass through the center of the knee
Summary Robotic Assisted TKA

• **Steps: Before surgery**
  – CT scan - computer model of the knee
  – Initial plan of component placement

• **Steps: In surgery**
  – Place arrays – computer can “see” knee
  – Register the knee – computer knows where the knee is in space
  – Measure the ligament laxity
  – Adjust the bone cuts and implant position for best alignment and knee balance in flexion and extension – **Critical step**
  – Use robotic arm to make the cuts
Summary Robotic Assisted TKA

- Fantastic new technology which allows us to have objective data about alignment and ligament balance
- Allows us to adjust the position of the total knee intraoperatively to maximize alignment and stability
- Precise bone cuts with a robotic assisted saw
- Final result is better alignment and joint stability
Summary Robotic Assisted TKA

• Better alignment and stability
• Less wear and better longevity of the knee replacement
• Last ? More than 20 years ?
Robotic Assisted TKA

• Literature review
• Well documented than alignment and balance is important
• What is acceptable? We don’t know
• Does this technology increase longevity of joint replacement?
• Makes sense but won’t know? for 20 years?
Robotic Assisted TKA

- Literature review

Patient Satisfaction Outcomes after Robotic Arm-Assisted Total Knee Arthroplasty: A Short-Term Evaluation

Robert C. Marchand, MD, Bipin Soothi, BA, Anton Khlopas, MD, Assem A. Sultan, MD, Steven F. Harwin, MD, Arthur L. Malkani, MD, Michael A. Mont, MD

1 Ortho Rhode Island, Wakefield, Rhode Island
2 Department of Orthopaedic Surgery, Cleveland Clinic, Cleveland, Ohio
3 Arthritis Surgery, Mount Sinai Beth Hospital, New York
4 Department of Orthopaedic Surgery, KentuckyOne Health, Louisville, Kentucky

Address for correspondence: Michael A. Mont, MD, Department of Orthopaedic Surgery, Cleveland Clinic, 9500 Euclid Avenue 4100, Cleveland, OH 44195, e-mail: montm@ccf.org, rhondamont@aol.com

Abstract

Robotic arm-assisted total knee arthroplasty (RA-TKA) presents a potential, new added value for orthopedic surgeons. In today’s healthcare system, a major determinant of value can be assessed by patient satisfaction scores. Therefore, the purpose of the study was to analyze patient satisfaction outcomes between RA-TKA and manual total knee arthroplasty (TKA). Specifically, we used the Western Ontario and McMaster Universities Arthritis Index (WOMAC) to compare (1) pain scores, (2) physical function scores, and (3) total patient satisfaction outcomes in manual and RA-TKA patients at 6 months postoperatively. In this study, 58 cemented RA-TKAs performed by a single orthopedic surgeon at a high-volume institution were analyzed. The first 7 days were considered as an adjustment period along the learning curve. Twenty consecutive cemented RA-TKAs were matched and compared with 20 consecutive cemented manual TKAs performed immediately. Patients were administered a WOMAC satisfaction survey at 6 months postoperatively. Satisfaction scores between the two cohorts were compared and the data were analyzed using Student’s t-tests. A p-value < 0.05 was used to determine statistical significance. The mean pain score, standard deviation (SD), and range for the manual and robotic cohorts were 5.7 ± 3 (range: 0–10) and 3.3 ± 3 (range: 0–8, p < 0.05), respectively. The mean physical function score, SD, and range for the manual and robotic cohorts were 9.5 ± 3 (range: 0–17) and 7.4 ± 3 (range: 0–14, p = 0.035), respectively. The mean total patient satisfaction score, SD, and range for the manual and robotic cohorts were 14 (range: 0–27 points, SD: ±8) and 7 ± 8 points (range: 0–22 points, p < 0.05), respectively. The results from this study further highlight the potential of this new surgical tool to improve short-term pain, physical function, and total satisfaction scores. Therefore, it appears that patients who undergo RA-TKA can expect better short-term outcomes when compared with patients who undergo manual TKA.

Table 1 Six-month manual versus robotic TKA WOMAC scores

<table>
<thead>
<tr>
<th>Surgical technique</th>
<th>Manual TKA</th>
<th>Robotic arm-assisted TKA</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean 6-mo postoperative WOMAC—pain</td>
<td>5 ± 3 (range: 0–10)</td>
<td>3 ± 3 (range: 0–8)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Mean 6-mo postoperative WOMAC—physical function</td>
<td>9 ± 5 (range: 0–17)</td>
<td>4 ± 5 (range: 0–14)</td>
<td>0.055</td>
</tr>
<tr>
<td>Mean 6-mo postoperative WOMAC—total score</td>
<td>14 (range: 0–27, SD: ±8)</td>
<td>7 (0–22; SD: ±8)</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

Abbreviations: SD, standard deviation; TKA, total knee arthroplasty; WOMAC, Western Ontario and McMaster Universities
Robotic Assisted TKA

- My take after 6 months
- BETTER
  - Better stability – no clicking or popping
  - ROM – Less manipulations?
- NO CHANGE
  - Recovery
  - Blood loss
  - Not less invasive
Robotic Assisted TKA

• Conclusions
  – Technology advancement is occurring exponentially
  – Use of technology in medicine will tremendously increase – THA, TSA
  – Alignment and ligament balance is important in TKA
  – Current technology with a robotic assisted computed guided system is helping us do a more precise TKA
  – Better outcomes!!??
Do You Want a Robot to do Your Surgery?

• Objectives
  – 1. A summary of the latest surgical advances in orthopedics
  2. Understand how technology and robotics are uniquely suited to orthopedics
  3. Discuss how these advances improve patient outcomes
Robotic Assisted TKA

• Questions???

Dog looking at laptop.
Robotic Assisted TKA

• David E. Nonweiler, M.D.
• dnonweiler@csosortho.com
• 918-625-8837 cell
Minimally Invasive Techniques in Spine Surgery

April, 2019
Dr. Jeffrey P. Nees
Tendency Toward Bigger more Complicated Spine Surgeries

- Options where no option existed before
- Greater array of options when past options were limited
- More options for salvage surgery
- Direct visualization of structure/anatomy
- Fusion/TDR vs. decompression
- *Higher reimbursement
Drawbacks

- Longer surgery time and post-op stays
- More tissue trauma and resultant scar formation
- More disruption of normal anatomy
- More disruption of native circulatory patterns and greater blood loss
- Increased post-operative pain
- Longer overall recovery
Decompression vs. Fusion

- Fusion/TDR for back pain, decompression for leg pain
- Important to look at the characteristics of back pain and its relation to leg pain
- Except for instability, advanced degeneration, and fracture, statistics show little if any advantage in patient outcomes for fusion over decompression
Minimally Invasive Surgery

Smaller incisions and exposures are utilized taking advantage of newer techniques/technology in order to achieve the same goals as an open surgery.
Advantages

• Often shorter operations
• Shorter hospital stays
• Less tissue trauma and scar formation
• Less disruption of normal anatomy
• Less disruption of native circulatory patterns and less blood loss
• Less post-operative pain
• Shorter overall recovery
• *Lower infection rate
Disadvantages

- Learning curve
- Less direct visualization/more fluoroscopy
- Comfort with anatomical knowledge
- Expenditure for specialized equipment
Open vs. Minimally Invasive Approach

“Open” Laminectomy

Minimally-Invasive Lumbar Microdecompression
Technique
Technique (Cervical)
Foraminotomy

Technique (Cervical)

Before Surgery
- Disc Fragment
- Pinched Nerve

After Surgery
- Laminectomy (disc fragment removed)

Top view of disc, spinal nerves, and vertebra
Technique (Lumbar)
Cervical Fixation (Anterior)
Cervical Fixation (Posterior)
Cervical Fixation (Posterior)
Cervical Fixation (Posterior)
Lumbar Fixation (ALIF)
Lumbar Fixation (TDR)
Lumbar Fixation (PLIF)
PLIF vs TLIF
Lumbar Fixation (TLIF)
Lumbar Fixation (TLIF)
Lumbar Fixation (XLIF/DLIF)
Lumbar Fixation (XLIF/DLIF)
Lumbar Fixation (XLIF/DLIF)

Large transversely placed XLIF cage
Lumbar Fixation (XLIF/ DLIF)
Lumbar Fixation (OLIF)
Lumbar Fixation (OLIF)
In the majority of instances of spine disease that require surgery, at least one minimally invasive option for treatment exists and should be considered whenever possible. These minimally invasive techniques offer many distinct advantages over their open surgical counterparts and are increasingly supplanting them. They may well become the standard of care in the foreseeable future.
“Your X-ray showed a broken rib, but we fixed it with Photoshop.”
Administrative Law Judge Panel Discussion

Mike Egan
Tara Inhofe
P. Blair McMillin
Molly Lawyer