



DRUG SCREENING AND INTERPRETATION: WHAT CAN GO WRONG?

ROBERT B. HANLIN, M.D., FAAFP

VICE CHAIR, MEDICAL STAFF AFFAIRS AND QUALITY

DEPARTMENT OF FAMILY MEDICINE

GREENVILLE HEALTH SYSTEM

DRUG SCREENING

- LEARNING OBJECTIVES:
 - REVIEW RECOMMENDED DRUG SCREENING PRACTICES IN PATIENTS WITH CHRONIC PAIN
 - DISCUSS COMMON PITFALLS OF URINE DRUG SCREENING AS WELL AS APPROPRIATE INTERPRETATION OF URINE DRUG SCREENING TEST RESULTS
- DISCLOSURES:
 - I HAVE NOTHING TO DISCLOSE

DRUG SCREENING

- REVIEW RECOMMENDED DRUG SCREENING PRACTICES IN PATIENTS WITH CHRONIC PAIN
 - ACCORDING TO THE SOUTH CAROLINA MEDICAL BOARD POLICY(1):
 - **JOINT REVISED PAIN MANAGEMENT GUIDELINES APPROVED BY THE SOUTH CAROLINA BOARDS OF MEDICAL EXAMINERS, DENTISTRY AND NURSING**
 - (NOVEMBER 2014)
- **DRUG SCREENING IS NEVER REQUIRED.**
- **BUT, IT IS HIGHLY RECOMMENDED PRIOR TO STARTING CHRONIC OPIOID THERAPY OR PRESCRIBING OVER 90 MORPHINE EQUIVALENT DOSE PER DAY (MED)**

DRUG SCREENING

- LEARNING OBJECTIVES:
 - 50% OF OUR LEARNING OBJECTIVES ARE COMPLETE!

DRUG SCREENING

- LEARNING OBJECTIVES:
 - DISCUSS COMMON PITFALLS OF URINE DRUG SCREENING AS WELL AS APPROPRIATE INTERPRETATION OF URINE DRUG SCREENING TEST RESULTS
 - THIS ONE IS A BIT MORE COMPLEX!
 - SURVEYS HAVE SHOWN THAT THE MAJORITY OF PRIMARY CARE DOCTORS AND EMERGENCY MEDICINE DOCTORS HAVE LOW LEVELS OF KNOWLEDGE ABOUT THE INTERPRETATION OF DRUG TESTING RESULTS (2)

THE PATIENT

- 40 YEAR OLD MALE
- WORKS IN A WAREHOUSE
- CHRONIC LOW BACK PAIN FOR 15 YEARS
 - NO IMPROVEMENT AFTER BACK SURGERY 5 YEARS AGO
- PREVIOUS PRIMARY CARE DOCTOR HAS RETIRED
- TAKING HYDROCODONE 10 MG TWICE A DAY
 - HE HAS ONE MONTHS WORTH OF MEDICATION REMAINING

THE PATIENT

- 40 YEAR OLD MALE
- PMH:
 - BACK PAIN
 - TAKES OXYCODONE AND IBUPROFEN
 - DEPRESSION
 - TAKES VENLAFAXINE
 - SUPRAVENTRICULAR TACHYCARDIA
 - TAKES VERAPAMIL
 - RECENT UTI
 - STILL TAKING OFLOXACIN

THE PATIENT

- 40 YEAR OLD MALE
- BEFORE ASSUMING RESPONSIBILITY FOR CHRONIC OPIOIDS, YOU DECIDE TO ORDER A URINE DRUG SCREEN
- YOU ORDER A 10 PANEL DRUG SCREEN, WITH CONFIRMATION TESTING
- BECAUSE HE IS ON AN OPIOID, YOU ADD SPECIFIC TESTING FOR SEVERAL OPIOIDS
- YOU TELL THE PATIENT YOU WILL HAVE TO REVIEW HIS MEDICAL AND IMAGING RECORDS, AND HIS LAB TEST RESULTS, BEFORE CONSIDERING PRESCRIBING OPIOIDS
- YOU HAVE THE PATIENT RETURN IN 2 WEEKS

THE PATIENT

- 40 YEAR OLD MALE
- WHAT ELSE DO YOU WANT TO KNOW ABOUT HIS PAIN?

THE PATIENT

- 40 YEAR OLD MALE
- WHAT ELSE DO YOU WANT TO KNOW ABOUT HIS PAIN?
 - WHAT OTHER THERAPIES HAVE BEEN TRIED?
 - WHAT **FUNCTIONAL** BENEFIT DOES HE GET FROM THE HYDROCODONE?

THE PATIENT

- 40 YEAR OLD MALE
- WHAT ELSE DO YOU WANT TO KNOW BEFORE SENDING THE URINE DRUG SCREEN?

THE PATIENT

- 40 YEAR OLD MALE
- WHAT ELSE DO YOU WANT TO KNOW BEFORE SENDING THE URINE DRUG SCREEN?
 - CATALOG ALL MEDICATIONS, INCLUDING OVER THE COUNTER MEDICATION, AND THE TIMES OF THE LAST DOSE OF EACH
 - HAS HE USED ANY NON-PRESCRIPTION DRUGS OR DRUGS FROM OTHERS?

THE RESULTS

- THE URINE DRUG SCREENING RESULTS COME BACK:
 - POSITIVE FOR:
 - AMPHETAMINES
 - MORPHINE
 - METHADONE
 - CANNABINOIDS
 - PCP
 - HYDROCODONE
 - HYDROMORPHONE

THE RESULTS

- WHAT DO YOU DO NEXT?
 - A. DISMISS THE PATIENT FOR LYING TO YOU
 - B. CALL THE POLICE
 - C. REFER THE PATIENT FOR DRUG ADDICTION TREATMENT
 - D. WAIT FOR CONFIRMATORY TESTING
 - E. IGNORE THE RESULTS
 - F. DISCUSS THE RESULTS WITH THE PATIENT

DRUG TESTING

- RELATED QUESTIONS (3)
 - WHAT SAMPLE SHOULD YOU USE FOR TESTING?
 - URINE
 - BLOOD
 - SALIVA
 - HAIR
 - DO YOU NEED TO DO “CHAIN OF CUSTODY” TESTING?
 - WHAT TYPES OF URINE DRUG TESTING ARE AVAILABLE?
 - HOW MUCH DOES URINE DRUG TESTING COST?

DRUG TESTING

- RELATED QUESTIONS
 - WHAT SAMPLE SHOULD YOU USE FOR TESTING?
 - URINE
 - BLOOD
 - SALIVA
 - HAIR
 - URINE IS USUALLY SIMPLER AND CHEAPER

DRUG TESTING

- RELATED QUESTIONS
 - DO YOU NEED TO DO “CHAIN OF CUSTODY” TESTING?
- THIS IS USUALLY UNNECESSARY AND ADDS EXTRA EXPENSE
- MAY BE NEEDED FOR EMPLOYER DRUG SCREENS, DOT PHYSICALS, ETC.

DRUG TESTING

- RELATED QUESTIONS

- WHAT TYPES OF URINE DRUG TESTING ARE AVAILABLE?

- SCREENING TESTS

- IMMUNOCHEMICAL TESTS

- SIMPLE

- CLIA WAIVED

- FAIRLY SENSITIVE

- **FALSE POSITIVES ARE COMMON**

- BUT, FALSE POSITIVES FOR COCAINE OR BENZODIAZEPINES ARE UNCOMMON

- SOME FALSE NEGATIVES

- CONFIRMATORY TESTS

- GAS CHROMATOGRAPHY OR LIQUID CHROMATOGRAPHY COMBINED WITH MASS SPECTROSCOPY (GC-MS OR LC-MS)

- **FALSE POSITIVES ARE VERY RARE**

- FALSE NEGATIVES ARE RARE, BUT POSSIBLE

- DILUTE URINE

- RAPID METABOLIZERS

- ETC.

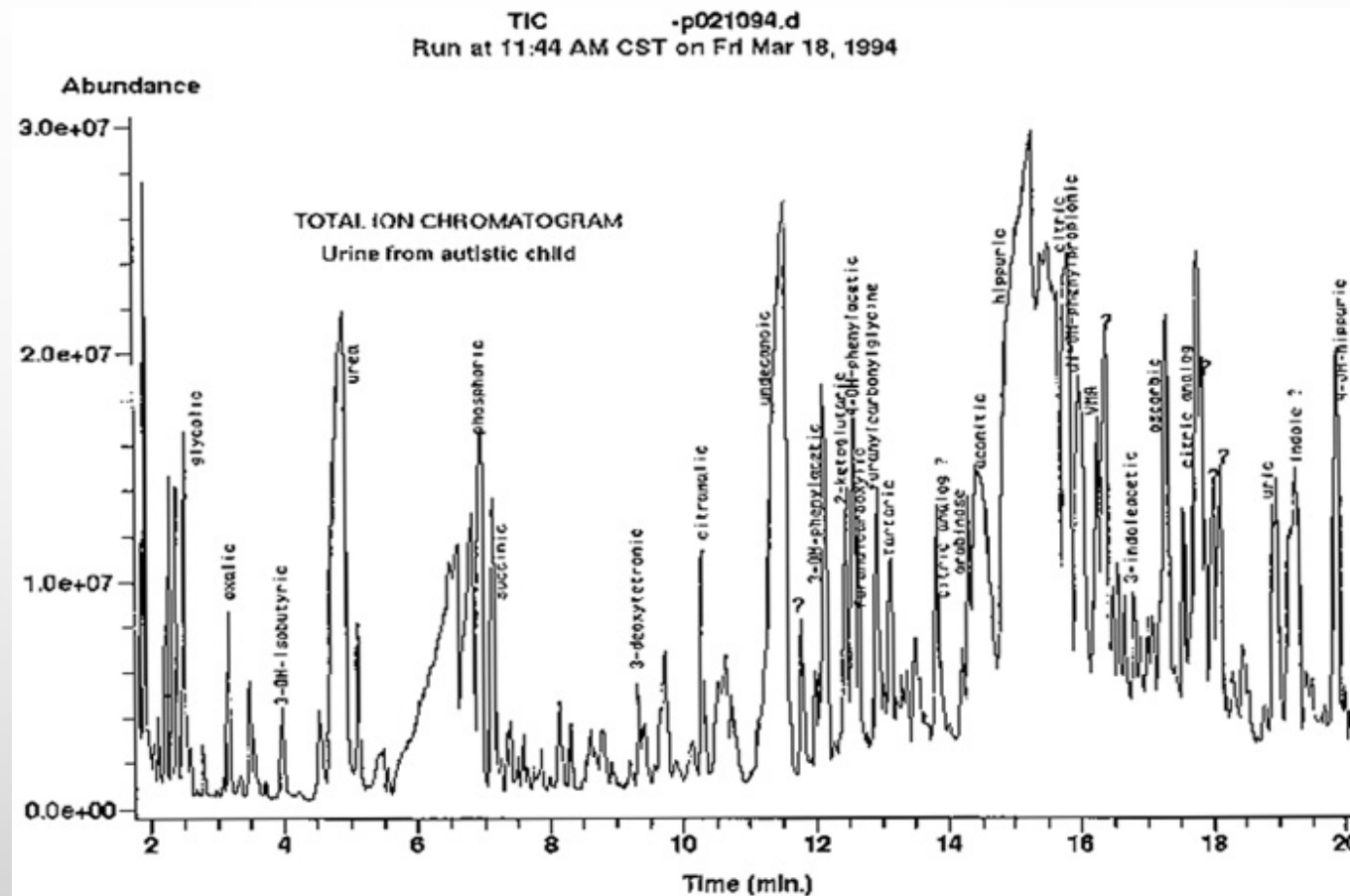
SCREENING TESTS - IMMUNOCHEMICAL



CONFIRMATORY TESTING – GC-MS



CONFIRMATORY TESTING – GC-MS



DRUG TESTING

- RELATED QUESTIONS
 - HOW MUCH DOES URINE DRUG TESTING COST
 - SCREENING TESTS
 - CHEAP (USUALLY \$40 - \$100) FOR A MULTI-PANEL TEST
 - CONFIRMATORY TESTS
 - VERY EXPENSIVE (ABOUT \$200 - \$400 **PER ISOLATE**)

BACK TO THE PATIENT

- CONFIRMATORY TESTING SHOWED (4):
 - AMPHETAMINES: NEGATIVE (KNOWN FALSE POSITIVE FROM OFLOXACIN)
 - MORPHINE: NEGATIVE (KNOWN FALSE POSITIVE FROM OFLOXACIN)
 - METHADONE: NEGATIVE (KNOWN FALSE POSITIVE FROM VERAPAMIL)
 - CANNABINOIDS: NEGATIVE (KNOWN FALSE POSITIVE FROM IBUPROFEN)
 - PCP: NEGATIVE (KNOWN FALSE POSITIVE FROM VENLAFAXINE)
 - HYDROCODONE: NEGATIVE
 - THE PATIENT REPORTED BEING ON THIS MEDICATION
 - SOME PATIENTS ARE “ULTRA RAPID METABOLIZERS,” CREATING A VERY SHORT HALF-LIFE FOR THE PARENT DRUG
 - HYDROMORPHONE: POSITIVE (METABOLITE OF HYDROCODONE)

BACK TO THE PATIENT

- HOW MUCH DID ALL THIS TESTING COST?

- BASIC DRUG SCREEN: \$100
- CONFIRMATORY TESTING (\$400 X 7 ISOLATES) \$2,800
- **TOTAL:** **\$2,900**

- **WHO PAYS FOR THAT?**

- **USUALLY THE PATIENT DOES**

- **IS THIS INFORMATION WORTH IT?**

- ONE ARTICLE ESTIMATE THAT ONLY 60% OF NEGATIVE URINE SCREENS FOR OPIOIDS ARE CORRECT (5)
- THIS MEANS YOU WOULD BE FALSELY ACCUSING 40% OF PATIENTS OF NOT TAKING THEIR OPIOID

DRUG TESTING

- WHAT ALTERNATIVES TO DRUG TESTING MIGHT YOU CONSIDER?
 - PRESCRIBE LOWER DOSES OF OPIOIDS, SO YOU WORRY LESS
 - TALK TO THE PATIENT MORE
 - SEE THE PATIENT MORE FREQUENTLY
 - PILL COUNTS (**NOT** AT THE END OF THE PRESCRIPTION)
 - FOCUS ON **FUNCTIONAL** BENEFITS OF OPIOIDS
 - IN 2017, THE PATIENT'S MAIN GOALS SHOULD BE FUNCTIONAL
 - HARDER TO FAKE CONSISTENTLY

SUMMARY

- SC BOARD OF MEDICAL EXAMINERS RECOMMENDS, BUT DOES NOT REQUIRE, DRUG TESTING
- THINK CAREFULLY ABOUT DRUG SCREENING
 - WHAT WILL YOU DO WITH THE RESULTS?
 - IF YOU ARE GOING TO IGNORE THE RESULTS, ITS BETTER TO NOT DO THE TEST IN THE FIRST PLACE
 - WHO WILL PAY FOR THE TESTING?
- CONSIDER TALKING WITH THE PATIENT BEFORE ORDERING CONFIRMATORY TESTING
(EXPENSIVE)
- DO NOT AUTOMATICALLY DISMISS PATIENTS WITH UNEXPECTED DRUG TESTING RESULTS
 - MANY FALSE POSITIVES
 - MAY BE AN OPPORTUNITY TO TALK THE PATIENT INTO ADDICTION TREATMENT

REFERENCES

1. JOINT REVISED PAIN MANAGEMENT GUIDELINES APPROVED BY THE SOUTH CAROLINA BOARDS OF MEDICAL EXAMINERS, DENTISTRY, AND NURSING, NOVEMBER 2014.
([HTTP://WWW.LLR.STATE.SC.US/POL/MEDICAL/PDF/JOINT REVISED PAIN MANAGEMENT GUIDELINES.PDF](http://www.llr.state.sc.us/pol/medical/pdf/joint_revised_pain_management_guidelines.pdf))
2. URINE DRUG TEST INTERPRETATION: WHAT DO PHYSICIANS KNOW? REISFIELD GM, BERTHOLF R, BARKIN RL, WEBB F, WILSON G. J OPIOID MANAGEMENT, 2007 MAR-APR;3(2):80-6.
3. SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION. CLINICAL DRUG TESTING IN PRIMARY CARE. TECHNICAL ASSISTANCE PUBLICATION (TAP) 32. HHS PUBLICATION NO. (SMA) 12-4668. ROCKVILLE, MD: SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION, 2012.
4. FALSE-POSITIVE INTERFERENCES OF COMMON URINE DRUG SCREEN IMMUNOASSAYS: A REVIEW. ALEC SAITMAN, HYUNG-DOO PARK, AND ROBERT L. FITZGERALD. JOURNAL OF ANALYTICAL TOXICOLOGY 2014;38:387–396.
5. REVIEW: RATIONAL USE AND INTERPRETATION OF URINE DRUG TESTING IN CHRONIC OPIOID THERAPY. GARY M. REISFIELD, ELAINE SALAZAR, AND ROGER L. BERTHOLF. ANNALS OF CLINICAL & LABORATORY SCIENCE, VOL. 37, NO. 4, 2007.