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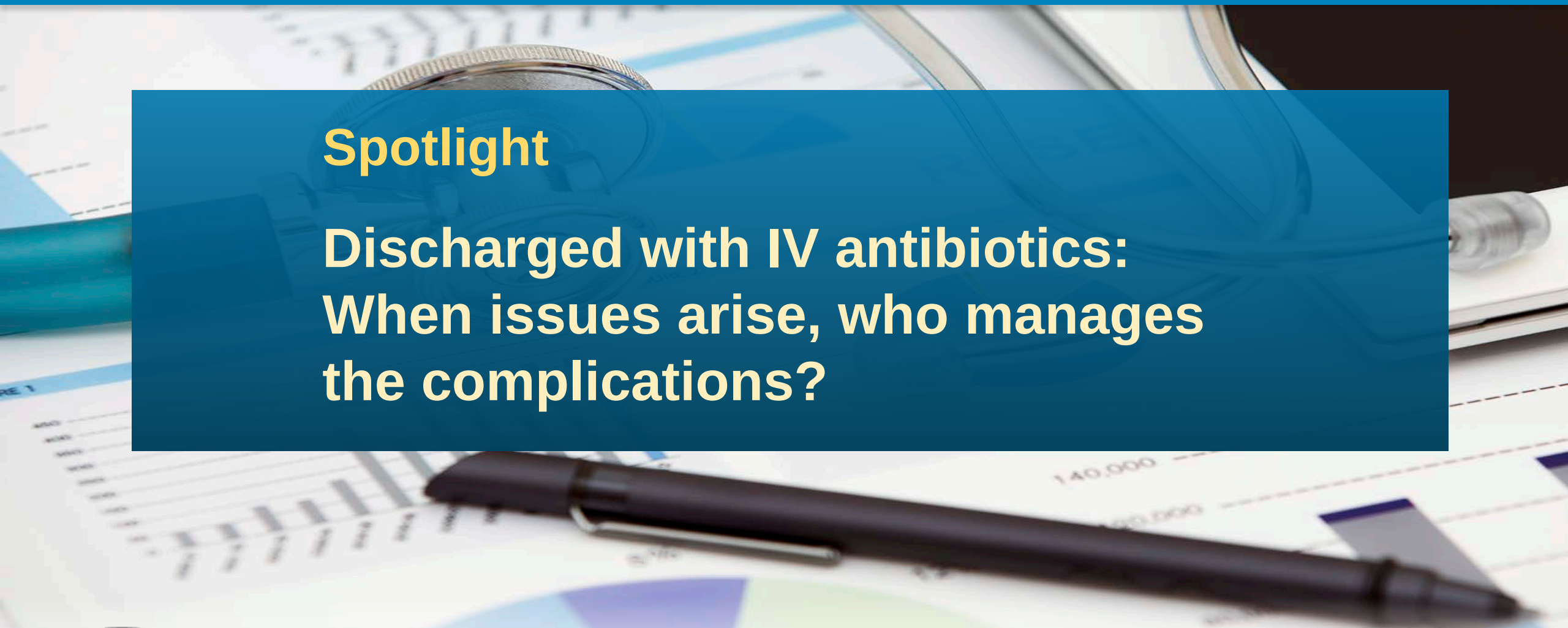

Spotlight

Discharged with IV antibiotics: When issues arise, who manages the complications?

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

PSNet
PATIENT SAFETY NETWORK

Source and Credits

- This presentation is based on the February 2020 AHRQ WebM&M Spotlight Case
  - See the full article at https://psnet.ahrq.gov/webmm
  - CME credit is available
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Objectives

At the conclusion of this educational activity, participants should be able to:

- List key members of the OPAT team
- Describe the roles of the OPAT team in facilitating outpatient antibiotic therapy
- Discuss what needs to be communicated with the OPAT team before a patient is discharged
- Appreciate the importance of open and clear communication in transitions of care for patient safety

Case 1: OPAT follow-up?

68-year-old male patient was hospitalized and treated with intravenous (IV) antibiotics for bilateral septic knee arthritis with MSSA bacteremia as a complication of bilateral knee injections.

Other medical problems included type II diabetes mellitus, hypertension, hyperlipidemia, and right lower extremity deep vein thrombosis.

He was discharged to a skilled nursing facility (SNF) for continuation of intravenous antibiotics.

There was no recommendation for a follow-up appointment at the Infectious Diseases clinic, and although follow-up laboratory tests were recommended, they were not drawn.

Case 1: OPAT follow-up? (2)

The patient was seen in the Orthopedics clinic one month after he was discharged to SNF.

He still had a central venous catheter in place, despite the antibiotic course having been completed 2 weeks prior to arrival in Orthopedics clinic.

The patient had no signs or symptoms of infection and his central venous catheter was removed.

He was instructed to continue with physical therapy for range of motion, gait training and strengthening.

Case 2: OPAT follow-up? (1)

A 38-year-old male patient was hospitalized & treated with IV antibiotics for traumatic injury with subsequent abscess of his right knee, osteomyelitis of the distal femur requiring resection and placement of spacer, and external fixation of the right leg.

Other medical problems included paraplegia and pneumonia.

The patient was discharged to a SNF for 4 weeks of IV antibiotics with discharge orders to follow up with Orthopedics in 2 weeks & Infectious diseases clinic in 3 weeks.

Discharge orders included weekly complete blood count, metabolic panel, and vancomycin trough levels.

Case 2: OPAT follow-up? (2)

Patient was seen in orthopedics clinic 3.5 weeks after discharge to SNF, still on IV antibiotics and with no signs of infection.

The post discharge follow-up laboratory tests that had been ordered were not available in the medical record for review during the orthopedics clinic appointment.

Despite discharge orders to schedule a f/u appointment in Infectious Diseases clinic in 3 weeks, the patient was not seen until 5 weeks after discharge to SNF.

Case 2: OPAT follow-up? (5)

The follow-up lab tests again were not available for review during the Infectious diseases clinic appointment.

The delays in clinic follow up were potentially due to Christmas and New Year Holiday closures and difficulty in obtaining insurance authorization for this referral.

Background:

- Hospital discharge and initiation of Outpatient Parenteral Antimicrobial Therapy (OPAT) can be beneficial for both the patient and the institution.
- Early hospital discharge:
  - Reduces number of hospital days, overall cost of hospitalization, and risk of acquiring hospital-acquired conditions/infections.
  - Allows patients to resume their normal daily activities and schedule sooner.

Settings

- Three primary settings where hospitalized patients can receive parenteral antibiotics after discharge include home, an infusion center, or a skilled nursing facility.
- An appropriate home infusion therapy candidate is one who can self-administer IV medications at home or with the help of a family member, friend, or care provider.
  - IV antibiotics may also be administered in infusion centers, which serve patients who prefer to receive their IV antibiotics in a clinical setting without being hospitalized.
  - Patients who require a higher level of care may complete their therapy in a skilled nursing facility (SNF).

Guidelines:

- Infectious Diseases Society of America (IDSA) published updated guideline for OPAT practice in 2018
  - Additionally released an OPAT eHandbook
  - https://www.idsociety.org/opat-ehandbook/
- IDSA Guidelines and eHandbook describe team members, roles, and processes that make up an effective OPAT program

OPAT Team Members:

- Primary Care Provider
- Primary Team during hospitalization
- Infectious Diseases Physician
- Infectious Diseases Pharmacist
- Discharge Planner

Evaluating OPAT Cases:

- Does patient need IV antibiotic therapy?
  - Could patient receive oral (PO) antibiotics instead?
- Can the selected therapy be administered safely and effectively in the chosen discharge setting?
- Is the correct antibiotic dose and duration ordered?
- Are the necessary lab and clinic follow-up orders placed and communicated?
- Discharge planners can be “gate keepers” to ensure patients have established treatment/monitoring plan

Necessary Components of OPAT Plan:

- Care plan with discharge location
- IV antibiotic order with correct duration
- Appropriate IV access established
- Lab monitoring orders
- Established and communicated follow-up appointments with infectious diseases specialist
- **Clearly designated 24/7 point of contact for patient in case of unanticipated complications with therapy**

Discharge Locations:

- OPAT primarily performed in one of three different locations following discharge from the hospital:
  - Patient's home or other dwelling: prison, motel, shelter
  - Outpatient infusion center
  - Skilled nursing facility (SNF)

Lab Monitoring:

- IDSA OPAT Guidelines make recommendations for laboratory monitoring based on choice of IV antibiotic and duration of therapy

- A minimum of once weekly laboratory monitoring is recommended in OPAT patients with stable renal function

OPAT Team Members:

- Primary Team during hospitalization
  - Initiate contact with other members of the OPAT team and ensure overall inpatient coordination of care prior to discharge

- Primary Care Provider
  - Ensure appropriate follow-up care after discharge from hospital

OPAT Team Members:

- Infectious Diseases Physician
  - Follows patient in clinic following discharge from the hospital
  - Monitors weekly laboratory orders/values and clinical status of infection
  - Coordinate plan and antibiotic dose adjustments with ID pharmacist
  - Some institutions utilize inpatient ID consults for OPAT prior to discharge

OPAT Team Members:

- Discharge Planner
  - Guarantee adequate review of discharge plan has been completed
  - Confirm necessary antibiotic, laboratory, and follow-up clinic orders have been placed
  - Ensure appropriate communication and documentation of transition of care and OPAT plan

Case #1 Issues

- Lab monitoring was correctly ordered at discharge but never completed at the SNF.
- Patient lacked f/u with Infectious Diseases and the central line remained in place for 2 weeks after therapy ended.
- Fortunately, there were no adverse effects
- If active weekly monitoring had continued after discharge by the OPAT team, then SNF would have been reminded to collect necessary lab tests, timely follow-up in the Infectious Diseases clinic would have occurred, and the central line would have been removed at completion of therapy

Case #2 Issues

- Patient discharged to SNF on treatment with IV vancomycin.
- Vancomycin per IDSA OPAT Guidelines requires weekly therapeutic drug monitoring in patients with stable renal function.
- Vancomycin has a narrow therapeutic window;
  - If dose is subtherapeutic (too low), it may not be effective
  - If dose is supratherapeutic (too high), it may be toxic to the kidneys or ears.
- Patient was seen for follow-up in the Ortho Clinic, but lab results unavailable for review
- Patient was not seen in the Infectious Diseases Clinic until week 5 In this case, weekly active monitoring would have ensured that vancomycin levels were collected and interpreted for appropriate dosing.

Both Cases

- Active follow-up care was deficient.
- An OPAT team providing follow-up care is an effective way to remedy this potential gap
- Dedicated staffing hours assigned to nursing personnel, an Infectious Diseases physician, and an Infectious Diseases pharmacist are needed for the OPAT program to run effectively and successfully.[5,6]
- OPAT team must ensure active follow-up and management of lab tests, drug levels, catheter complications, and antibiotic side effects.

Both Cases (2)

- Ongoing monitoring of the clinical status of the infection is another responsibility of the OPAT team.
- This process may be able to prevent hospital readmissions, resolve parenteral access issues, and adjust antibiotic therapy as needed.[7] The OPAT nurse ensures that laboratory tests are collected and ready for review during clinic hours. The physician assesses laboratory tests and follows patients in clinic during the course of treatment. The physician also works with the pharmacist to manage any changes in drug therapy due to dose-related adverse effects or sub- or supra-therapeutic drug levels.

Summary

- OPAT has been successfully utilized by health systems since the 1970s.
- In addition to preparing patients for discharge on IV antibiotics, f/u care must be established and communicated.
- Patient needs a responsible physician, with 24-7 on-call backup, dedicated to their care after leaving the hospital.
  - This physician and OPAT team, manages complications, IV access issues, and/or drug related side-effects.
  - Active follow-up may include a required Infectious Diseases consultation or referral to an OPAT team.

Take-Home Points

- OPAT involves antimicrobial stewardship, so the first step is always to assess need for parenteral antibiotics.
- Transition of care from the hospital is successful when the patient is an appropriate candidate for therapy in their home, an infusion center, or SNF.
  - Appropriate IV access must be established, laboratory monitoring must be ordered
  - It must be clear that the patient is tolerating and responding to the selected antimicrobial(s).
  - Patients must be able to safety store the antibiotic and supplies if the infusion is being provided at home.

Take-Home Points

- Patients who self-administer or have someone help them at home must prove they are competent and able.
  - They are trained by the infusion company providing the medication.
  - They need to be able to store the medication and supplies appropriately. Good eyesight and hand-eye coordination are needed to connect the medication bag to the IV tubing.
- OPAT patients must have access to their care team 24-7, in case of catheter-related complications or adverse drug reactions and need an established support system after discharge

Take-Home Points

- Laboratory monitoring is recommended in the OPAT guidelines and at minimum should be performed once weekly in patients with stable renal function.
- Discharge planners are excellent gatekeepers to ensure patients are not discharged on IV antibiotics without appropriate follow up care.
- An institution may require all patients discharged on IV antibiotic therapy be reviewed by an Infectious Diseases pharmacist and/or have a formal Infectious Diseases consultation.
- An OPAT program can save health care dollars through early discharge from the hospital and allow patients to return to their activities of daily living.[2]

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THANK YOU