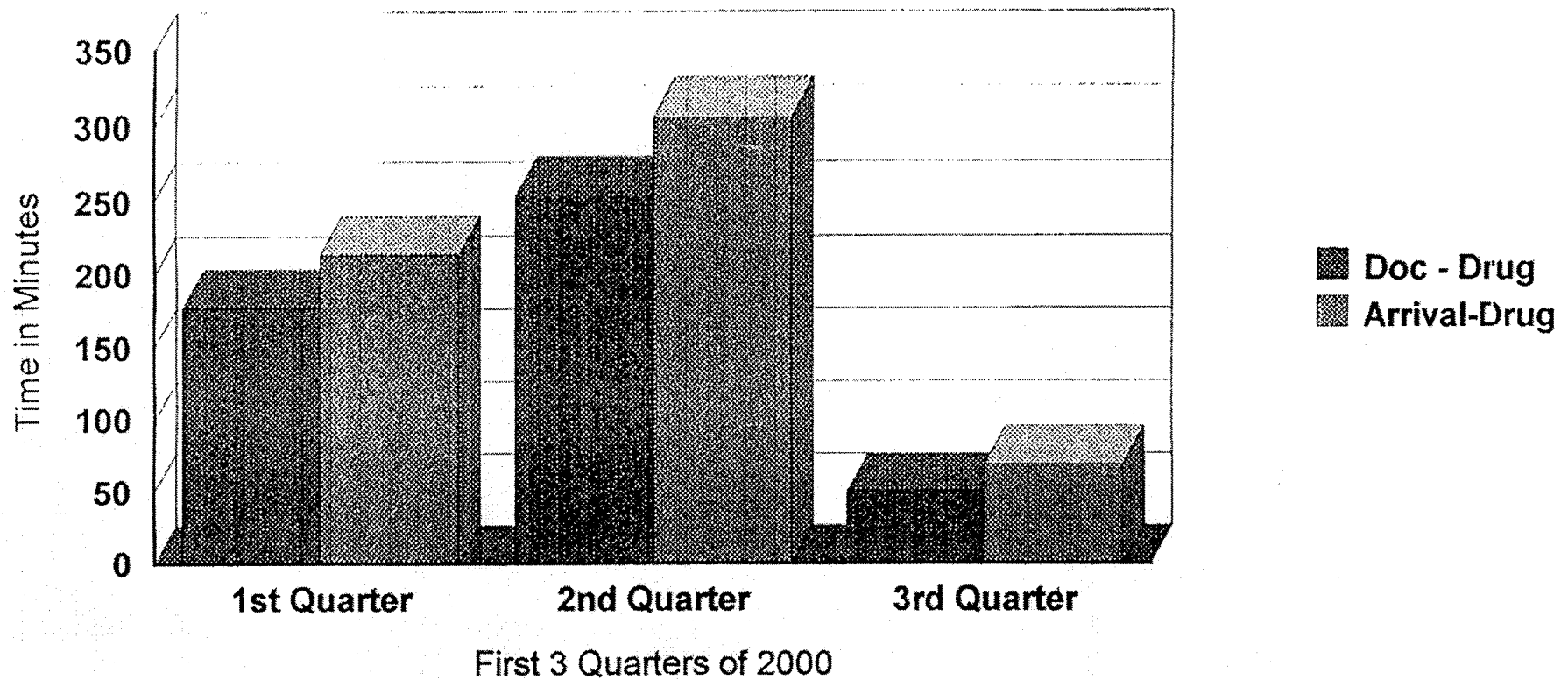


A Quality Improvement Success from One Hospital in Illinois

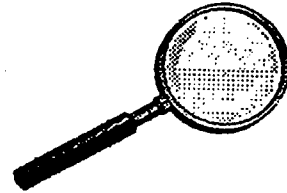
The following is a synopsis of a QI project that we have completed in our Emergency Department.

1. It was decided in our Pediatric / Emergency Department PI meeting that we would look at the timely administration of IV antibiotics in our Emergency Department.
2. Baseline data was collected retrospectively on all children admitted with a diagnosis of rule out sepsis. Our target group was Neonates, we looked at all children to establish a broader baseline of information.
3. See attached graph – First and second quarter data collected –
 - Barriers identified & intervention devised
 - At the end of the second quarter an educational offering was given to the staff about IV antibiotic administration to infants. A syringe pump was made available as well as pre-filled syringes of medications from the pharmacy. The staff was asked to complete a quiz attached to a self-learning packet (attached).
 - Third quarter data collected and presented to staff & QI committee
4. We shortened the duration time of patient arrival > administration of first dose of medication, as well as time the physician saw the patient > administration of first dose of medication. (In all cases the septic work up ordered, was completed prior to medication)
5. Improvement on this process would be possible if data was collected for one month on only neonates. (This is a very small subgroup, but impacted the most by this issue)
6. It should be noted that this project was accomplished with only a cursory knowledge QI models and no previous experience with this type of work.

Pediatric R/O Sepsis Antibiotic Administration



Pediatric Intravenous Antibiotic Administration in the Emergency Department



I. Ampicillin (the simple one)

- A. Contraindicated in children with penicillin allergy or sensitivity.
- B. Supplied in 125 mg, 250 mg, 500 mg vials.
- C. Reconstitute with 5 ml SWFI (sterile water for injection).
- D. Dosing:
 - 1) Systemic infections, (acute and chronic UTI'S).
Give 25 to 50 mg/kg/day I.V. in divided doses every 6 - 8 hours.
 - 2) Meningitis - give 100 to 200 mg/kg/day I.V. in divided doses every 3 - 4 hours.
- E. Administer I.V. push over 3 -5 minutes. Do not exceed rate of 100 mg/minute.

II. Gentamicin (the liquid one)

- A. Contraindicated in children with aminoglycoside sensitivity.
Use with caution if child has impaired renal function.
- B. Supplied in 10 mg/1ml vials for pediatric patients.
- C. Does not require reconstitution.
- D. Does not require further dilution. Usually the volume of drug is so small that further dilution is needed to administer.
 - 1) May dilute with 0.9% NaCl, or D5W to a volume that can be worked with via syringe pump or IVPB.
- E. Dosing: 2 to 2.5 mg/kg every 8 hours. In neonates given every 12 hours.
- F. Administer via I.V. pump or syringe pump over 1 hour.
 - 1) Drug levels will need to be drawn 30 minutes to 1 hour after initial drug administration (peak level) and prior to second dose of drug (trough level).

III. Rocephin or Ceftriaxone (the common one)

- A. Contraindicated in children with hypersensitivity to drug or cephalosporins.
- B. Supplied in 250 mg, 500 mg, or 1 gram vials.
- C. Reconstitute with SWFI, 0.9% NaCl, or D5W.
 - 1) Use 2.4 ml of diluent with 250 mg vial, to equal 100 mg/1ml.
 - 2) Use 4.8 ml of diluent with 500 mg vial, to equal 100 mg/1ml.
 - 3) Use 9.6 ml of diluent with 1 gram vial, to equal 100 mg/1ml.
- D. Further dilution is required!
 - 1) Dilute with a minimum amount of D5W to equal a 25 mg/1ml dose.
Example: We have 100 mg/ml reconstituted, add 3 ml of additional diluent to obtain a 25 mg/ml solution of drug, or 100 mg/4 ml.
 - 2) This dilution situation is only an issue if you are concerned about total volume of fluids administered (very small infant). If fluid overload is not a concern just put the desired dose in a 50cc D5W (what pharmacy uses) and administer.
- E. Dosing: 50 to 75 mg/kg/day, divided doses every 12 hours. Not to exceed 2 grams daily.
- F. Administer via I.V. pump or syringe pump over 30 minutes.

IV. Claforan or Cefotaximine (the fancy one)

- A. Contraindicated in children with hypersensitivity to drug or other cephalosporins.
- B. Supplied in 500 mg and 1 gram vials.
- C. Reconstitute with SWFI, 0.9% NaCl, or D5W.
 - 1) Use 4.8 ml of diluent with 500 mg vial, to equal 100 mg/1ml.
 - 2) Use 9.6 ml of diluent with 1 gram vial, to equal 100 mg/ml.
- D. Further dilution prior to administration is not required. If total fluid volume is not an issue, may give in 50ml bag of 0.9NaCl as IVPB.
- E. Dosing: Children under 50 kg. Give 50 to 180 mg/kg/day, I.V. in divided doses every 4 to 6 hours.
- F. Administer via I.V. pump or syringe pump over 30 minutes.

There is hope on the horizon. Once we obtain syringe pumps, pharmacy will mix up all our needed antibiotic in the syringes ready to go, we just load the pump and give the medicine!!!

Pediatric Intravenous Antibiotic Administration

Post-test

Matching: Match all letters that apply to each question.

1. Which of the drugs on the right are given over 30 minutes as an I.V. infusion? <u>C D</u>	A. Ampicillin
2. Which of the drugs on the right can be given IVP? <u>A</u>	B. Gentamicin
3. Which of these 4 drugs are administered over 1 hour as an I.V. infusion? <u>B</u>	C. Rocephin
4. Which of these medications must have drug levels drawn around the initial dose? <u>B</u>	D. Claforan
5. Which of the drugs on the right requires a minimum dilution after it is reconstituted? <u>C</u>	

Name Please _____