

The Office/Clinic Model for OPAT

Alan D. Tice University of Washington

A physician-directed infusion center maintains the physician-patient relationship and offers the advantages but not the expense of the hospital setting.

Throughout the history of modern medicine, parenteral antimicrobials, such as intramuscular penicillin, have been administered in physicians' offices or clinics. More recently, the development of new agents with long half-lives, as well as technological advances in vascular access and infusion devices, have made the provision of intravenous (IV) therapy possible not only in offices and clinics but in patients' homes as well.

Most offices that provide outpatient parenteral antimicrobial therapy (OPAT) treat a large enough patient population to make the development of the necessary expertise worthwhile. These facilities are primarily infectious diseases practices, multispecialty groups, and hospital clinics dedicated to outpatient therapy.¹⁻⁸

The office or clinic model offers the advantage of bringing together a medical team comparable to that in the hospital. Given a sufficient number of patients, a dedicated OPAT team can be developed, including intravenous therapy nurses, and pharmacists with specialized knowledge of outpatient therapies. Moreover, physician involvement is assured in programs based in medical offices and multispecialty clinics.

The more involved and knowledgeable the physician is, the more appropriately patients can be treated. In the presence of clinical failure or intolerance, the physician can easily change the medication; if adverse reactions occur, closer follow-up can be provided. The duration of therapy can also be adjusted more easily with physician involvement. Finally, in the office or clinic model, the first dose of an antimicrobial can be administered under medical supervision, an option not always available for home infusion patients.

Unfortunately, there are many disincentives for physician involvement in the delivery of OPAT,

including inadequate payment for home visits, and reduced income because of less frequent patient visits as well as regulatory restraints regarding physician ownership of health care services, self-referral, and payments to other physicians for referrals. Furthermore, because physicians have no control over a home care or infusion provider or the people involved, yet retain the risks and responsibilities for their patients receiving such care, they may be reluctant to discharge patients to OPAT.

On the other hand, physicians are more likely to prescribe OPAT if they are involved and knowledgeable regarding its benefits and risks. They will feel much more comfortable discharging patients from the hospital early or treating them as outpatients without prior hospitalization.

The simplest way to deliver OPAT is to have patients come into the physician's office for daily infusions. With increasing patient volume and clinical expertise, as well as some investment, it is possible to deliver the antimicrobial by sending a nurse to the patient's home to give the infusion or, more commonly, to train the patient or caregiver to administer the drug him- or herself. More than half of the OPAT patients treated at Infections Limited are taught to self-administer their infusions at home;

Dr. Tice is Clinical Assistant Professor of Medicine, University of Washington School of Medicine, Seattle, and a specialist in infectious diseases with Infections Limited, Tacoma.

Reprint requests: Alan D. Tice, MD, Infections Limited P.S.,
1624 South 1 Street, Tacoma, WA 98405.

they receive the necessary drugs and supplies when they come to the office for regular visits.¹

Infections Limited has been treating patients in the office since 1981 when investigational studies began with ceftriaxone. At first medications were administered on the weekends in one examination room with one nurse.² Now approximately 600 patients are treated each year with five IV therapy nurses and two pharmacists plus administrative and billing personnel.¹ The practice receives as many consultation requests for patients with serious infections in the office as in the hospital and manages as many outpatients as inpatients on IV antimicrobials.

The clinic is licensed by the Washington State Board of Pharmacy, the laboratory is certified by the American College of Pathologists, and the practice is licensed by the state to provide home nursing. In 1994 we became the first physician office ambulatory infusion program to be accredited by the Joint Commission on Accreditation of Healthcare Organizations.

Initially, all our study patients were hospitalized for parenteral antibiotic therapy. However, it became increasingly difficult to confine otherwise healthy people to the hospital for once-daily infusions with a drug such as ceftriaxone. Based on this experience, we began to administer antimicrobial infusions to other patients in the office once they had been stabilized in the hospital. Then, with time and additional experience, we became more comfortable with starting some patients directly on IV therapy in the office without prior hospitalization. With the progressive pressures in managed care, there are greater incentives to avoid hospitalization altogether. We now find that two thirds of our patients are started on parenteral antimicrobial therapy in the office. Patients are referred to us by physicians from walk-in clinics and from emergency rooms.

Most offices that provide OPAT treat a large enough patient population to make the development of the necessary expertise worthwhile.

The infections most frequently treated in our practice during the year from June 1994 to June 1995 are listed in Table 1. Although osteomyelitis tops the list for that year, and we continue to treat the staphylo-

Table 1. Infections Treated at Infections Limited, Year Ending June 1995

Infection	No. of Patients
Bone	107
Soft tissue	103
Joint, bursa	84
Postoperative wound	45
Respiratory	26
Ear, nose, throat	25
Pelvic	24
Urinary	19
Heart	14
Other	138
TOTAL	585

coccal variety with parenteral drugs, many gram-negative types can now be treated with oral fluoroquinolones. Skin and soft-tissue infections, the second most frequently seen, range from lymphangitis to bite and surgical wound infections, most commonly caused by staphylococci or streptococci.

Patients with postoperative infections are often sent to our office rather than being rehospitalized since we have the facilities and nurses to provide good wound care as well as IV antimicrobial therapy. The less frequent chest, abdomen, urinary, and heart infections also lend themselves well to OPAT. In fact, there does not seem to be an infection that cannot be treated, at least in part, on an outpatient basis with OPAT.

The antimicrobial agents that we used during the year ending June 1995 are listed in Table 2. The primary drug, ceftriaxone, is well tolerated, can be given once a day for many infections, and has broad-spectrum activity. The secondary agent is vancomycin, which is usually administered once daily as well. Drug number three, ceftazidime, is an effective antistaphylococcal agent frequently used for patients who can self-administer three times a day.

Billing and Reimbursement

Another advantage of the physician-directed program is the ability to bundle or risk-share under managed care. A doctor closely involved in the program and knowledgeable about its patient population can work out arrangements with the insurer to bundle drug costs with the per diem usually charged for the administration of supplies and services. Laboratory

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Table 2. Antimicrobials Used at Infections Limited, Year Ending June 1995

<i>Antimicrobial</i>	<i>Cases</i>	<i>Days</i>
Ceftriaxone	297	4083
Vancomycin	74	1579
Oxacillin	62	1191
Ceftazidime	45	683
Cefazolin	27	450
Aminoglycosides	29	319
Clindamycin	21	260
Combinations	76	1189
Other	86	1452
TOTAL	717	11,206

studies, and even the physician's visits, can be combined as well. This offers a particular advantage to the third-party payer in controlling costs, particularly if the flat per diem rate can include all patients regardless of diagnosis.

However, capitation on a per-member, per-month basis presents some risks. Outpatient providers who have agreed to capitated rates for a projected number of home care patients have experienced financial losses when third-party payers made concerted efforts to have patients discharged to home care. It is best to try to develop a gradual risk-sharing contract with a provider rather than to take on capitation for home care all at once. Another option is to carve out a particular diagnosis, such as osteomyelitis or OPAT itself, and negotiate per-member, per-case fees.^{9,10}

The major drawback to the office or clinic model is that the patients must travel to an office or clinic for their medication, which may prove a problem for patients who are debilitated, in pain, or don't have,

or can't drive, a car. Nevertheless, this model is effective for most patients, who would prefer to travel to a clinic once a day than to be hospitalized. The office infusion model also offers Medicare patients the advantage of payment for IV antibiotics if they are given under the direct supervision of a physician.

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References

1. Tice AD. Alternate site infusion: the physician-directed, office based model. *Journal of Intravenous Nursing* 1996;19:188-193.
2. Tice AD. An office model of outpatient parenteral antibiotic therapy. *Rev Infect Dis* 1991;13[suppl 1]:S184-188.
3. Tice AD. Experience with a physician-directed, clinic-based program for outpatient parenteral antibiotic therapy. *Eur J Clin Microbiol Infect Dis* 1995;14:23-29.
4. Tice AD. Physician-directed, clinic-based program for outpatient intravenous antibiotic therapy. In: Connors RB, Winters RW, eds. *Home Infusion Therapy: Current Status and Future Trends*. Chicago: American Hospital Publishing, 1995:103-114.
5. Hindes R, Winkler C, Kane P et al. Outpatient intravenous antibiotic therapy in Medicare patients: cost-savings analysis. *Infectious Disease Clinical Practice* 1995;4:211-217.
6. Poretz DM. The infusion center: a model for outpatient parenteral antibiotic therapy. *Rev Infect Dis* 1991;13[suppl 2]:S42-46.
7. Failla DM, Dalovisio JR, Miller WE. Outpatient antibiotic infusion therapy (OPAT) at the Ochsner medical institutions—a retrospective analysis [abstract]. OPIVITA III 1995.
8. Poretz DM. Infusion center, office, and home. *Hosp Pract [Off Ed]* 1993;28[suppl 2]:40-43.
9. Cherney A. Capitation and risk sharing contracting guidelines, parts 1-3. OPIVITA Newsletter 1996;7:6-11.
10. Tice AD, Slama TG, Berman S et al. Managed care and the infectious diseases specialist. *Clin Infect Dis* 1996;23:341-368.