

# Sports Health: A Multidisciplinary Approach

<http://sph.sagepub.com/>

---

## Comparison of the Effect of Medical Assistants Versus Certified Athletic Trainers on Patient Volumes and Revenue Generation in a Sports Medicine Practice

Forrest Q. Pecha, John W. Xerogeanes, Spero G. Karas, Megan E. Himes and Brandon A. Mines  
*Sports Health: A Multidisciplinary Approach* published online 17 January 2013  
DOI: 10.1177/1941738112472659

The online version of this article can be found at:  
<http://sph.sagepub.com/content/early/2013/01/08/1941738112472659>

---

Published by:



<http://www.sagepublications.com>

On behalf of:



[American Orthopaedic Society for Sports Medicine](#)

**Additional services and information for *Sports Health: A Multidisciplinary Approach* can be found at:**

**Email Alerts:** <http://sph.sagepub.com/cgi/alerts>

**Subscriptions:** <http://sph.sagepub.com/subscriptions>

**Reprints:** <http://www.sagepub.com/journalsReprints.nav>

**Permissions:** <http://www.sagepub.com/journalsPermissions.nav>

>> [OnlineFirst Version of Record](#) - Jan 17, 2013

[What is This?](#)

# Comparison of the Effect of Medical Assistants Versus Certified Athletic Trainers on Patient Volumes and Revenue Generation in a Sports Medicine Practice

Forrest Q. Pecha, MS, ATC, LAT, OTC, CSCS,\*† John W. Xerogeanes, MD,‡ Spero G. Karas, MD,‡ Megan E. Himes, MEd, ATC, OTC,§ and Brandon A. Mines, MD‡

**Background:** Research has shown increases in efficiency and productivity by using physician extenders (PEs) in medical practices. Certified athletic trainers (ATCs) that work as PEs in primary care sports medicine and orthopaedic practices improve clinic efficiency.

**Hypothesis:** When compared with a medical assistant (MA), the use of an ATC as a PE in a primary care sports medicine practice will result in an increase in patient volume, charges, and collections.

**Study Design:** Cross-sectional study.

**Methods:** For 12 months, patient encounters, charges, and collections were obtained for the practices of 2 primary care sports medicine physicians. Each physician was assisted by an ATC for 6 months and by an MA for 6 months. Eighty full clinic days were examined for each physician.

**Results:** Statistically significant increases were found in all measured parameters for the ATC compared with the MA. Patient encounters increased 18% to 22% per day, and collections increased by 10% to 60% per day.

**Conclusion:** ATCs can optimize orthopaedic sports medicine practice by increasing patient encounters, charges, and collections.

**Clinical Relevance:** Orthopaedic practices can be more efficient by using ATCs or MAs as PEs.

**Keywords:** athletic trainer; physician extender; efficiency; productivity; collections

Physician workloads are increasing due to the growing physician shortage across the United States.<sup>1,6</sup> Traditionally, efficiency has improved by delegating tasks to a physician extender (PE), who can perform both clinical and administrative tasks under the guidance of the attending physician. A PE can perform tasks for a physician and increase the doctors' direct patient contact time by 1 hour per day.<sup>11</sup> Physicians were also able to open their schedule to more patients per day.<sup>11</sup> The role of a PE has historically been filled by physician assistants, nurse practitioners, or medical assistants (MAs).<sup>5,7,10,13</sup> More recently, primary care sports medicine

physicians and orthopaedic surgeons have employed certified athletic trainers (ATCs) as PEs.<sup>3,10,14</sup>

ATCs are health care providers educated in the care of the physically active to prevent, evaluate, acutely treat, and rehabilitate musculoskeletal injuries.<sup>9</sup> They have special skills in the evaluation of musculoskeletal medicine. ATCs can increase the number of patients seen and patient satisfaction by performing clinical and administrative tasks, including injury assessment, wound care, suture removal, splinting, and casting.<sup>3,10,12,14</sup> ATCs can teach exercise programs and fit crutches, canes, braces, and orthotics.<sup>2,3,10,12,14</sup> ATCs can assist

From †St Luke's Sports Medicine, Boise, Idaho, ‡Emory Orthopaedic and Spine Center, Atlanta, Georgia, and §Resurgens Orthopaedics, Atlanta, Georgia

\*Address correspondence to Forrest Q. Pecha, MS, ATC, LAT, OTC, CSCS, St Luke's Sports Medicine, 1109 West Myrtle Street, Suite 200, Boise, ID 83702 (e-mail: pechaf@slhs.org).

The following authors declared potential conflicts of interest: Forrest Q. Pecha, MS, ATC, LAT, OTC, CSCS, is a consultant for and received a residency grant from DJO Global, and is a paid speaker for the American Association of Orthopedic Executives; John W. Xerogeanes, MD, is a consultant for Linvatec, received fellowship supports from DJ Ortho, Linvatec, Arthrex, Smith Nephew, and Ossur, and received payment for lectures from Linvatec; and Spero G. Karas, MD, is a consultant for DJ Ortho, received grants from DJ Ortho, Linvatec, Arthrex, Smith Nephew, and Ossur, and received payment for lectures and royalties from DJ Ortho.

DOI: 10.1177/1941738112472659

© 2013 The Author(s)

Table 1. Encounters, collections, and billed charges for physicians A and B<sup>a</sup>

|                    | Physician A |         |                    |       |        | Physician B |         |                    |       |        |
|--------------------|-------------|---------|--------------------|-------|--------|-------------|---------|--------------------|-------|--------|
|                    | Mean        | SE Mean | Mean Diff (95% CI) | t     | P      | Mean        | SE Mean | Mean Diff (95% CI) | t     | P      |
| Encounters, n      |             |         |                    |       |        |             |         |                    |       |        |
| MA                 | 15.02       | 0.23    | 3.06 (3.84, 2.29)  | -7.82 | < 0.01 | 22.92       | 0.62    | 4.16 (5.68, 2.65)  | -5.42 | < 0.01 |
| ATC                | 18.09       | 0.32    |                    |       |        | 27.09       | 0.45    |                    |       |        |
| Collections, \$    |             |         |                    |       |        |             |         |                    |       |        |
| MA                 | 2143        | 40.45   | 222 (343, 102)     | -3.64 | < 0.01 | 2041        | 56.30   | 1164 (1334, 993)   | -13.5 | < 0.01 |
| ATC                | 2366        | 45.86   |                    |       |        | 3204        | 65.43   |                    |       |        |
| Billed charges, \$ |             |         |                    |       |        |             |         |                    |       |        |
| MA                 | 3466        | 89.47   | 306 (564, 48)      | -2.34 | < 0.02 | 3113        | 88.82   | 1512 (1773, 1250)  | -11.4 | < 0.01 |
| ATC                | 3771        | 95.09   |                    |       |        | 4625        | 98.30   |                    |       |        |

SE, standard error; CI, confidence interval; MA, medical assistant; ATC, certified athletic trainer.  
<sup>a</sup>n = 80 for physician A and for physician B.

with completing insurance paperwork, prescriptions, letters, and reports; ordering diagnostic studies; triaging phone calls; and answering pre- and postoperative questions.<sup>3,10,12,14</sup> ATCs have held positions at the University of Wisconsin orthopaedic department since the mid-1970s. When an ATC was removed from the clinic, there was a 15% to 30% decrease in the number of patients seen per day.<sup>3</sup>

A PE can increase physician productivity, which may be further increased by a PE with specialized musculoskeletal training.<sup>3-5,7,8,10,11-14</sup> This study compares the effect of ATCs and MAs on patient volume, charges, and collections in a university-based primary care sports medicine practice.

## METHODS

Over a 12-month period, patient encounters, charges, and collections were obtained for the practices of 2 primary care sports medicine fellowship-trained physicians (physicians A and B). The practices of each physician served the same patient demographic (individuals aged 14-65 years with musculoskeletal injuries). Each physician was assisted by an MA and an ATC for 6 months. To remove variables such as half-day clinics, vacations, and holidays, 80 full clinic days from each 6-month period were evaluated for each physician using paired *t* tests, with the statistical significance set a priori at  $P = 0.05$ .

## RESULTS

For both physicians, there were significant increases in all measured parameters when comparing ATCs with MAs (Table 1). For both physicians, patient encounters increased when using ATCs versus MAs ( $P < 0.01$ ). Physician A's patient encounters increased from 15.02 to 18.09 per day. Physician B's encounters increased from 22.92 to 27.09 with the use of an ATC. Collections also increased for both physicians with an ATC ( $P < 0.01$ ). Physician A's collections increased over \$200 per day, while physician B's collections increased nearly \$1200 per day. Billed charges increased approximately \$300 ( $P = 0.02$ ) for physician A and \$1500 ( $P < 0.01$ ) for physician B with the assistance of an ATC.

## DISCUSSION

An ATC as a PE increased efficiency and productivity of this sports medicine practice twofold. Physicians were able to see 18% to 22% more patients per clinic day. The inherent knowledge that the ATC has in musculoskeletal care can improve a physician's practice.

An ATC must complete a 4-year bachelor degree from an accredited academic program and pass a board certification examination. Additionally, 70% of ATCs continue on to receive a master's degree in athletic training or a related field.<sup>9</sup> They are specially trained in the evaluation and recognition of musculoskeletal injuries.<sup>9</sup> ATCs can triage injuries quickly, thereby increasing productivity and efficiency in a physician's office.

There are limitations to this work, including its nature. However, this limitation proved to be a strength because neither physician had knowledge of being studied. Additionally, scheduling staff were unaware of which PE was working with physicians. Physicians were able to add patients to their schedule based on availability, which allowed for more same-day "add-ons" when an ATC was assisting them.

## CONCLUSION

By utilizing an ATC as a PE, the sports medicine practices added 3 or 4 patients per clinic day and increased collections by \$200 to \$1200 per day. An ATC in a primary care sports medicine practice can improve efficiency and increase patient visits and collections.

## REFERENCES

1. Association of American Medical Colleges. *The Complexities of Physician Supply and Demand: Projections Through 2025*. Washington, DC: Association of American Medical Colleges; 2008.
2. Carter P. ATC's can bill for "incident to" services. *Atbl Ther Today*. 2004.
3. Green J. Athletic trainers in an orthopedic practice. *Atbl Ther Today*. 2004;9(5):2.
4. Gryzbicki D, Sullivan P, Miller J, Bathka A, Raab S. The economic benefit for family/general medicine practices employing physician assistants. *Am J Manag Care*. 2002;8(7):8.
5. Grzybicki D, Vrbin C, Reily T, Zarbo R, Raab S. Use of physician extenders in surgical pathology practice. *Arch Pathol Lab Med*. 2004;128:7.
6. Health Resources and Services Administration. *The Critical Care Workforce: A Study of the Supply and Demand for Critical Care Physicians*. Rockville, MD: Health Resources and Services Administration; 2006.
7. Hooker RS. A cost analysis of physician assistants in primary care. *JAAPA*. 2002;15(11):39-48.
8. Larson EH, Hart LG, Ballweg R. National estimates of physician assistant productivity. *J Allied Health*. 2001;30(3):146-152.
9. National Athletic Trainers' Association. *The Facts About Athletic Trainers*. Dallas, TX: National Athletic Trainers' Association; 2010.
10. Polonchek J. Evolution of an athletic trainer. *Atbl Ther Today*. 2004;9(4):2.
11. Rodysill KJ. Increasing physician productivity using a physician extender: a study in an outpatient group practice at the Mayo Clinic. *J Med Pract Manag*. 2003;19(2):110-114.
12. Storch S, Stevens S, Allen A. Orthopedic surgeons' perceptions of athletic trainers as physician extenders. *Atbl Ther Today*. 2007;12(3):3.
13. Tache S, Chapman S. *What a Medical Assistant Can Do for Your Practice*. Leawood, KS: American Academy of Family Physicians; 2005.
14. Trampf D. Optimizing ATC's in occupational settings: Wisconsin as an example. *Atbl Ther Today*. 2004;9(6):3.