

# Interprofessional Collaboration – An Endocrine Surgery Model

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## Abstract

This review highlights the importance of interprofessional team-based care to improve the management of patients present to endocrine surgery outpatient offices with endocrine disorders that require ultrasound-guided fine-needle aspiration (FNA). A unique interprofessional collaborative approach among four different healthcare professions in the endocrine surgery unit (the surgeon, nurses in the office, ultrasound technician and pathology assistant) is described to improve and ensure the continuity of high-quality care, thereby improve outcome by mitigating issues related to patient access, scheduling, referral, diagnostic accuracy. Additionally, this approach helps to minimize the care miscoordination between healthcare professionals, and the emotional and financial burdens on patients and their families.

**Keywords:** Interprofessional, Collaboration, Endocrine, Surgery

## Introduction

More than half of all outpatient visits in the USA are to specialist health providers (Machlin & Carper, 2007). However, scheduling and patient access are major problems in the healthcare system, with an average waiting time of over 30 days in both the public and private sectors (Department of Veterans Affairs, 2014; Massachusetts Medical Society, 2013). The patient referral system contributes to the delays, having previously being described as a “perilous journey through the healthcare system” (Bodenheimer, 2008). In endocrine outpatient offices, radiological and pathological assessment by ultrasound-guided fine-needle aspiration (FNA) is the standard of care to support treatment decision-making (Haugen, et al., 2016). This requires patients to be referred to other professionals to undergo tests prior to returning to the office of the referring physician to discuss a management plan based on the results.

This approach is associated with a number of issues. First, there is the problem of patient access, scheduling and referral, as previously highlighted (Bodenheimer, 2008; Department of Veterans Affairs, 2014; Massachusetts Medical Society, 2013). Second, there is an issue of coordinating care and communications between healthcare professionals; it has been reported that one quarter of patients’ records and results are not successfully

transferred between departments in time for their appointment (Schoen et al. 2009). Thirdly, the issue of non-diagnostic biopsy or insufficient sampling from FNA; it has been documented in a meta-analysis by Bongiovanni et al. (2012) that rate of insufficient sampling is 12.9%. Fourthly, diagnostic error may be an issue, as communication breakdown has been shown to be a major factor for the introduction of errors, which have a direct impact on patients’ health (Singh, Naik, Rao, & Petersen, 2008). Finally, emotional and financial issues should be considered, as patients who experience prolonged waiting times have a higher rate of noncompliance and failure to attend appointments, as well as contributing to the overall burden on patients and their families (Gilboy et al., 2011; Kehle et al., 2011; Pizer & Prentice, 2011).

This paper describes a unique interprofessional collaborative approach among four different healthcare professions in the endocrine surgery unit (the surgeon, nurses in the office, ultrasound technician and pathology assistant). Implementing this approach means that thyroid ultrasound and FNA are performed in the same setting, thereby mitigating the issues outlined above and providing greater levels of satisfaction among patients and healthcare professionals, as well as ensuring the continuity of high-quality care and improved outcomes.

## Background

In 2001, the Institute of Medicine (IOM) published a document entitled ‘Crossing the Quality

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Chasm: A New Health System for the 21st Century', which aimed to improve the safety of healthcare in the USA, as well as making it more effective, patient-centered, timely, efficient and equitable (Institute of Medicine; 2001). In their work with physicians and nurse practitioners, Way et al. (2001) identified seven essential elements that are required for successful collaborative practice: cooperation, assertiveness, responsibility/accountability, autonomy, communication, coordination, mutual trust, and respect. Therefore, a move to redesign the traditional healthcare system has been initiated, focusing on educating and developing high functioning interprofessional teams to achieve those goals. Elements to improve the overall quality of care include decreasing medical errors, increasing patient safety, reducing the cost of care, and improving patient satisfaction (Morrison, Goldfarb, & Lanken; 2010). In addition (and in line with the IOM report and the importance of teamwork in healthcare), the Institute for Healthcare Improvement (IHI) has identified three major goals to shape the future of healthcare in the USA, known as the 'Triple Aims in Healthcare'. The first aim is to improve patients' experience of care, including improved access and quality of care as well as ensuring greater patient satisfaction. The second aim is to improve the health of populations rather than individual patients. The third aim is to reduce, or at least control, the per capita cost of healthcare provisions (Berwick, Nolan, & Whittington; 2008). In 2015, the IOM again called for more efficient interprofessional collaboration and teamwork that includes not only the patient but also their families (Balogh, Miller, & Ball, 2015).

Previous studies show that the quality, safety, and outcomes of patient care are improved when members of the healthcare team work together to use their complementary knowledge and skills, as well as respecting each other's expertise (Rogers et al., 2017; Zwarenstein, Reeves, & Perrier, 2004). Many models of interprofessional collaborative practice have been adopted in different settings in the healthcare system. In the trauma setting, 24 articles were published between 2000 and 2013; these descriptive and evaluative studies focused on the importance of interprofessional collaborative practice to optimize patient safety (Courtenay, Nancarrow & Dawson; 2013). In vascular surgery, an interprofessional collaborative approach was successfully implemented by a team comprising an emergency physician, surgeon, anesthesiologist, nursing staff and radiology technician, to develop a new technique (resuscitative endovascular balloon

occlusion of the aorta; REBOA) (Qasim et al.; 2018). In the breast surgery setting, successful interprofessional communication and collaboration between the surgical team and the pathology laboratory team in the operating room has been shown to minimize the number of women requiring repeat surgery after undergoing treatment for breast cancer, thereby reducing costs and the associated patient burden (Carroll et al.; 2018). In eye healthcare, appropriate collaboration and shared management of patients between ophthalmologists and optometrists for more than two decades has resulted in enhanced patient care (Budning, & El-Defrawy, 2016); this collaborative concept has been endorsed in Canada, by the Royal College and Canadian Medical Association, and in the USA, by the American Academy of Ophthalmology and the American Optometric Association (Budning, & El-Defrawy, 2016; Teutsch, Woodbury, Welp, McCoy, 2016). In oral and dental healthcare, interprofessional collaborative models in the management of chronic diseases, such as diabetes, cardiovascular diseases (CVD), human immunodeficiency virus (HIV) and mental health, have also been described (Southerland, Webster-Cyriaque, Bednarsh, & Mouton; 2016). In maternity care, the American College of Obstetricians and Gynecologists (ACOG)/American College of Nurse-Midwives (ACNM) have highlighted the importance of collaboration between midwives and obstetricians to meet client needs with mutual respect and trust, thereby enhancing healthcare provision (Avery, Montgomery, & Brandl-Salutz; 2012).

By implementing an interprofessional collaborative model in the endocrine outpatient's office, the key issues can be addressed with a high degree of success. Here, we describe the composition, structure and interactions required for a high-performing interprofessional team in the endocrine surgery office.

## Discussion

Patients with thyroid problems attend their physician's or surgeon's outpatient's office to undergo clinical evaluation. Most patients are likely to require further radiological assessment, which may involve further pathological assessment. By implementing the concept of interprofessional collaboration, patients are able to undergo the required radiological and pathological investigations on the same day and in the same setting. This approach creates patient-centered care practice and encourages participation of patients and their families in the decision-making

along with the collaborative health professionals; as this form of collaboration between health professionals is a key and an essential component of patient-centered primary care practice (Department of Veterans Affairs, 2010). Furthermore, this 'one-stop shop' service accelerates the patients' journey towards diagnosis and minimizes the frustration that may arise as a result of miscommunication and prolonged waiting times (Jatulis, Bundek, & Legorreta, 1997). In addition, this approach enhances the productivity of the outpatients office by optimizing the accuracy of diagnosis and eliminating the insufficiency of cytological specimens, as it has been reported that ultrasound-guided FNA cytology performed by a surgeon with on-site cytopathology, resulted in a 100% cytologically-adequate result, when compared with the traditional approach (Witt, Sukumar & Gerges, 2015). It can also reduce testing-related diagnostic errors by minimizing the causes (such as those related to ordering and labeling), as well as expediting the total testing process (Epner, Gans, & Graber, 2013). This approach requires the presence of many coordinating professionals, as well as the appropriate organization of the office space and equipment.

The endocrine office team includes four healthcare professionals (the surgeon, nurse, radiology technician, and the assistant pathologist), who work together to provide a functional, efficient, and reassuring service. The equipment required includes an ultrasound machine, head and neck transducer, large monitor display screens, adjustable examination table, desktop microscope, and the supplies required for the biopsy procedure.

The Interprofessional Education Collaborative (IPEC) Expert Report discusses four important competencies to prepare practitioners for interprofessional collaborative practice: 1) values and ethics; 2) roles and responsibilities; 3) interprofessional communication; and 4) teams and teamwork (Interprofessional Education Collaborative; 2011). Every member of the four professions contributes to the ultimate goal, which is to provide appropriate patient care through the core competencies for interprofessional collaborative practice.

The following highlights the contribution of each member of the healthcare professionals, in the endocrine surgery unit, in alignment with the four core competency domains.

#### **Interprofessional values and ethics**

This competency ensures that every member

shares the same principles of professionalism and ethics through their education and accreditation process. In the endocrine surgery unit, mutual respect and trust have been successfully built between the four professions and with the patients.

Each member recognizes the importance of working together and sharing the principles of altruism and excellence by placing the interests of patients at the center of their care, in order to distinguish their team from other endocrine surgery units. In addition, they act with honesty, whilst respecting a patient's privacy, cultural diversity, family, and members of the team.

#### **Roles and responsibilities**

Each member of the four professions in the endocrine surgery unit knows their own role and understands the role of others. This results in effective coordination across the professions to ensure synergy in the workplace, which is critical to the success of the team.

The surgeon's role is to liaise with the patient to explain the procedure and to obtain consent, in addition to the practical role of identifying the culprit thyroid nodule and performing the ultrasound guided FNA procedure.

The role of nursing staff is important in the pre-procedure phase by ensuring appropriate documentation is in place and liaising with team members in the procedure room.

The radiology technician role is to position the patient, perform comprehensive neck ultrasound, document the measurements dictated by the surgeon, and to escort the patient from the procedure room.

The pathology assistant role is to prepare the required tools and to receive FNA specimens from the surgeon, in addition to checking that samples are sufficient for subsequent evaluation by the cytopathologist; if not, the surgeon will be notified immediately and the biopsy will be repeated in the same setting.

#### **Interprofessional communications**

The team members learn to provide and receive feedback in a clear and appropriate manner. If any member feels that patient care is compromised, they must speak up in a firm, albeit respectful, way irrespective of any professional hierarchy that may negatively affect communication and, therefore, teamwork. This simultaneous, real-time, communication overcomes the lack of coordination that often arises with traditional approaches.

The team members communicate in a clear and reflective manner to ensure the accuracy of

documentation, particularly relating to the thyroid nodule site and its dimensions. They express their opinions and thoughts verbally and non-verbally as appropriate during the procedure to ensure that the patient is safe and calm. The team members ensure that communications are clear in order to avoid confusion. For example, when clarifying the biopsy site, members use the word “correct” rather than “right” to verify the correct site of the specimens and avoid potential mislabeling and diagnostic errors. Family members attending the procedure are able to observe the entire process via a display monitor in the procedure room.

### Teams and teamwork

The team members in the unit collaboratively share accountability, problem-solving and decision-making, particularly in uncertain circumstances. The team members define their leader based on his/her expertise rather than status or authority.

The team members share accountability, problem-solving and decision-making with the surgeon; together they formulate and carry out an appropriate plan for the FNA procedure. The importance of such teamwork is paramount in high-risk and complex patients. The discussion is led by the surgeon, as the person with the highest degree of expertise and who carries most responsibility for the procedure.

### Conclusion

Integration of the collaborative team approach in the endocrine outpatients’ office has a direct, positive effect on patient outcomes. This approach enhances the quality of care provided through the involvement of different professionals, which expedites the work and ensures greater accuracy and fewer diagnostic errors in a well-controlled environment. In addition, it also increases patient satisfaction by minimizing the visit frequency and related waiting times.

This level of integration requires a significant investment of time, personnel, and capital expense; these include, but are not limited to, the cost of equipment, initial and ongoing training and personnel requirements.

### Declaration of Interest

The author reports no conflicts of interest. The author alone is responsible for the content and writing of this review article.

### References

- [1] Avery, M. D., Montgomery, O., & Brandl-Salutz, E. (2012). Essential components of successful

collaborative maternity care models. *Obstetrics and Gynecology Clinics*, 39(3), 423-434. doi: 10.1016/j.ogc.2012.05.010

- [2] Balogh, E. P., Miller, B. T., & Ball JR. (Eds). (2015). *Committee on Diagnostic Error in Health Care; Board on Health Care Services, Institute of Medicine, The National Academies of Sciences, Engineering, and Medicine: Improving Diagnosis in Health Care*. Washington, D.C: National Academies Press.
- [3] Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs (Project Hope)*, 27(3), 759-769. doi:10.1377/hlthaff.27.3.759
- [4] Bodenheimer, T. (2008). Coordinating care — A perilous journey through the health care system. *The New England Journal of Medicine*, 358(10), 1064-1071.
- [5] Budning, A., & El-Defrawy, S. (2016). Interprofessional collaboration in eye health care. *Canadian Journal of Ophthalmology*, 51(3), 130-132. doi: 10.1016/j.cjco.2016.04.007
- [6] Carroll, K., Mesman, J., McLeod, H., Boughey, J., Keeney, G., & Habermann, E. (2018). Seeing what works: Identifying and enhancing successful interprofessional collaboration between pathology and surgery. *Journal of Interprofessional Care*, 1-13. doi:10.1080/13561820.2018.1536041
- [7] Courtenay, M., Nancarrow, S., & Dawson, D. (2013). Interprofessional teamwork in the trauma setting: A scoping review. *Human Resources for Health*, 11(1), 57-57. doi:10.1186/1478-4491-11-57
- [8] Department of Veterans Affairs. (2014). Pending wait time using create date for new patients and desired date for established patients. [http://www.va.gov/HEALTH/docs/pending\\_access\\_data\\_using\\_CD\\_and\\_DD\\_11202014.pdf](http://www.va.gov/HEALTH/docs/pending_access_data_using_CD_and_DD_11202014.pdf)
- [9] Department of Veterans Affairs. Veterans’ Health Administration. (2010). VA requests proposals for primary care education centers of excellence. Program Announcement, Washington, DC
- [10] Epner, P. L., Gans, J. E., & Graber, M. L. (2013). When diagnostic testing leads to harm: A new outcomes-based approach for laboratory medicine. *BMJ Quality & Safety*, 22 Suppl 2 (Suppl 2), ii6-ii10. doi:10.1136/bmjqs-2012-001621
- [11] Gilboy, N., Tanabe, T. Travers, D., & Rosenau A. M. (2011). *Emergency Severity Index (ESI): A triage tool for emergency department care, version 4. Implementation handbook 2012*

- edition. (AHRQ Publication No. 12-0014). Rockville, MD: Agency for Healthcare Research and Quality
- [12] Haugen, B.R., Alexander, E.K., Bible, K.C., Doherty, G.M., Mandel, S.J., Nikiforov, Y.E., Pacini, F., Randolph, G.W., Sawka, A.M., Schlumberger, M., Schuff, K.G., Sherman, S.I., Sosa, J.A., Steward, D.L., Tuttle, R.M. and Wartofsky, L. (2016) 2015 american thyroid association management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer: The american thyroid association guidelines task force on thyroid nodules and differentiated thyroid cancer. *Thyroid*, 26(1), 1-133. doi:10.1089/thy.2015.0020
- [13] Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press.
- [14] Interprofessional Education Collaborative Expert Panel (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: Interprofessional Education Collaborative. Retrieved from <http://www.aacn.nche.edu/education-resources/IPECReport.pdf>
- [15] Jatulis, D. E., Bundek, N. I., & Legorreta, A. P. (1997). Identifying predictors of satisfaction with access to medical care and quality of care. *American Journal of Medical Quality*, 12(1), 11-17. doi:10.1177/0885713X9701200103
- [16] Kehle, S. M., N. Greer, I. Rutks, and T. Wilt. (2011). Interventions to improve veterans' access to care: A systematic review of the literature. *Journal of General Internal Medicine* 26 (Supplement 2):689- 696. doi:10.1007/s11606-011-1849-8
- [17] Machlin, SR, Carper, K (2007 b). *Expenses for Office-Based Physician Visits by Specialty, 2004*. Statistical Brief No.166. Agency for Healthcare Research and Quality: Rockville, MD.
- [18] Massachusetts Medical Society. (2013). *2013 MMS patient access to care study*. Waltham, MA: Massachusetts Medical Society.
- [19] Morrison, G., Goldfarb, S., & Lanken, P. N. (2010). Team training of medical students in the 21st century: Would flexner approve? *Academic Medicine: Journal of the Association of American Medical Colleges*, 85(2), 254-259. doi:10.1097/ACM.0b013e3181c8845e
- [20] Pizer, S. D., & Prentice, J. C. (2011). Time is money: Outpatient waiting times and health insurance choices of elderly veterans in the united states. *Journal of Health Economics*, 30(4), 626-636. doi: 10.1016/j.jhealeco.2011.05.004
- [21] Qasim, Z., Bradley, K., Panichelli, H., Robinson, J., & Zern, S. C. (2018). Successful interprofessional approach to development of a resuscitative endovascular balloon occlusion of the aorta program at a community trauma center. *The Journal of Emergency Medicine*, 54(4), 419-426. doi: 10.1016/j.jemermed.2018.01.005
- [22] Rogers, G., Thistlethwaite, J., Anderson, E., Abrandt Dahlgren, M., Grymonpre, R., Moran, M., & Samarasekera, D. (2017). International consensus statement on the assessment of interprofessional learning outcomes. *Medical Teacher*, 39(40), 347-357. doi:10.1080/0142159X.2017.1270441
- [23] Schoen, C., Osborn, R., How, S. K. H., Doty, M. M., & Peugh, J. (2009). In chronic condition: Experiences of patients with complex health care needs, in eight countries, 2008. *Health Affairs (Project Hope)*, 28(1), w1-w16. doi:10.1377/hlthaff.28.1.w1
- [24] Seiberling, K. A., Dutra, J. C., & Gunn, J. (2008). Ultrasound-Guided fine needle aspiration biopsy of thyroid nodules performed in the office. *The Laryngoscope*, 118(2), 228-231. doi:10.1097/MLG.0b013e318157465d
- [25] Singh, H., Naik, A. D., Rao, R., & Petersen, L. A. (2008). Reducing diagnostic errors through effective communication: Harnessing the power of information technology. *Journal of General Internal Medicine*, 23(4), 489-494. doi:10.1007/s11606-007-0393-z
- [26] Southerland, J. H., Webster-Cyriaque, J., Bednarsh, H., & Mouton, C. P. (2016). Interprofessional collaborative practice models in chronic disease management. *Dental Clinics of North America*, 60(4), 789-809. doi: 10.1016/j.cden.2016.05.001
- [27] Teutsch, S. M., Woodbury, R. B., Welp, A., McCoy, M. A. (2016). Toward a high-quality clinical eye and vision service delivery system. *Making eye health a population health imperative: Vision for tomorrow* (pp. 325-379). Washington, DC: The National Academies Press.
- [28] Way, D., Jones, L., & Baskerville, N. B. (2001). *Improving the effectiveness of primary health care through nurse practitioner/family physician structured collaborative practice (NA342). Final report to the Primary Health Care Transition Fund*. Ottawa, ON: University of

Ottawa

- [29] Witt, R. L., Sukumar, V. R., & Gerges, F. (2015). Surgeon-performed ultrasound-guided FNAC with on-site cytopathology improves adequacy and accuracy: Surgeon-performed ultrasound-guided FNAC. *The Laryngoscope*, 125(7), 1633-1636. doi:10.1002/lary.25214
- [30] Zwarenstein, M., Reeves, S., & Perrier, L. (2004). Effectiveness of pre-licensure interdisciplinary education and post-licensure collaborative interventions. In I. Oandasan, D. D'Amour, M. Zwarenstein et al. (Eds), *Interdisciplinary education for collaborative, patient-centred practice: Research & findings report*. Ottawa, ON: Health Canada.