

The Growth of Integrated Care Models in Urology



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KEYWORDS

- Multidisciplinary communication • Integrated health care systems • Integrative oncology
- Value-based purchasing • Telehealth • Genitourinary cancers • Bladder cancer • Prostate cancer

KEY POINTS

- Integrated health care models align health care providers and specialists to improve care coordination, diagnostic accuracy, shared decision making, and the delivery of timely, appropriate, evidence-based treatment, while ultimately reducing health care costs.
- For some urology practices and clinics, integrated health care models are an untapped resource that can improve patient outcomes and maintain reimbursements in the era of alternative payment models.
- Integrated care benefits all patients in urology, from pediatrics through transitional care and into adulthood.
- Multidisciplinary clinics (MDCs) are now the standard of care for managing genitourinary malignancies and show promise in other malignant and nonmalignant genitourinary diseases and conditions.
- Implementing MDCs can be resource-intensive and time-consuming, but in most settings, improved care coordination and treatment access ultimately reduces health care costs.

INTRODUCTION

Integrated health care models are increasingly sought in modern medicine. With recent health care reforms and the preference for value-based over volume-based health care, there is ongoing interest and emphasis on population health and evidence-based care that correlates patient outcomes and pathways with reimbursement metrics. Organizations such as Geisinger, Kaiser Permanente, and the Department of Veterans Affairs are well-known examples of large, fully integrated health care systems that attempt to improve quality, efficiency, and patient outcomes.¹ The integrated health care model has permeated over the years into regional health care systems and community clinics.

DEFINITIONS

Integrated health care models are organized, collaborative networks that aim to align health care providers who are clinically and/or fiscally accountable for patient populations across the care continuum.² The model should focus on a fully coordinated, evidence-based health care systems approach chiefly designed to manage and improve clinical outcomes.

IMPORTANCE

As has been recognized, integrated care models are associated with enhanced health care utilization, cost efficiencies, and patient outcomes. This model of health care delivery represents an

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untapped resource for some urology practices and clinics and can potentially improve outcomes in general, reconstructive, and pediatric urology, as well as urologic oncology.³

Because urologic conditions are most prevalent among older individuals, urologists often manage patients with comorbidities who receive multiple medications or are subjected to polypharmacy and whose care involves several specialists. This can potentially fragment health care delivery, leading to preventable hospitalizations, suboptimal health care outcomes, decreased quality of life, and greater health care costs.⁴ Integrating care can address these challenges and is vital for both younger and older urology patients.

BRIEF HISTORY OF INTEGRATED HEALTH CARE

The evolution of integrated care in the United States began as an attempt to manage escalating health care costs associated with fee-for-service payment structures that incentivized volume of care instead of quality of care. Under a traditional fee-for-service model, patients received inconsistent care due to a lack of standardization of practices and a disjointed physician landscape.⁵ The goal of integrated (or accountable) care is to improve patient outcomes and experiences while reducing costs associated with a specific health care delivery.

Historically, attempts at health care reform led to mixed results from Health Maintenance Organizations in the 1980s and 1990s and the Medicare Physician Group Practice Demonstration in the early 2000s.⁵ However, in 2008, Accountable Care Organizations (ACOs) were initiated to reform health care delivery by transitioning fee-for-service payment structures toward more accountable, value-based reimbursement. Physicians would therefore be motivated to provide health care more efficiently to not only lower costs but also increase quality. As part of the 2010 Patient Protection and Affordable Care Act, ACOs have become the leading alternative payment model to be used by the Centers for Medicare and Medicaid Services.⁶ This model attempts to alter health care implementation toward a value-based model and is potentially very impactful for the practice of urology, which has a preponderance of patients receiving Medicare benefits.

However, a recent study showed that only 10% of practicing urologists participated in ACOs.⁷ Contributing factors may include cumbersome regulatory burdens, the instruction required for implementation, and the fact that urology is a surgical subspecialty for which clear alternative

payment models have not evolved. There is some trending toward an increased transition from volume-based to value-based models, but the complexities of the health care system and ongoing health policy debates continue to thwart the implementation of optimal integrated systems.

VALUE OF MULTIDISCIPLINARY CARE IN ONCOLOGY

Multidisciplinary expertise is widely accepted as crucial for decision making in cancer care, particularly for complex clinical cases. Compared with health care facilities that lack an integrative care model, multidisciplinary clinics are more likely to follow evidence-based practice recommendations and are associated with fewer unnecessary delays between diagnosis and treatment, greater diagnostic accuracy guided by expert radiology and pathology review, and improved patient satisfaction scores. Multidisciplinary clinics have become common in the management of many types of non-genitourinary cancer, and their use has been shown to significantly alter patient management. Indeed, in published studies, multidisciplinary clinics changed case interpretation and/or treatment in 45% of patients with breast cancer, 23% of patients with myeloma, and 24% of patients with pancreatic cancer.^{8–12}

CURRENT INTEGRATED CARE MODELS IN UROLOGY

Integrated care positively impacts care for all patients. However, select populations in urology benefit most from this model of health care delivery. Examples include patients with complex pediatric genitourinary conditions, neuro-urologic disorders, interstitial cystitis or bladder pain syndrome, and complex urologic tumors. **Fig. 1** demonstrates an example of integrated health care in urology. We briefly discuss each of these populations and provide examples of how multidisciplinary clinics help streamline care and improve outcomes.

Pediatric Urology

Integrated care is essential when managing pediatric patients with complex congenital genitourinary anomalies. These children often require multispecialty therapies throughout their lives, necessitating the development of multidisciplinary teams that provide effective care.¹³ A comprehensive example of multidisciplinary pediatric care is the Nationwide Children's Hospital Center for Colorectal and Pelvic Reconstruction. At this multidisciplinary clinic (MDC), pediatric patients

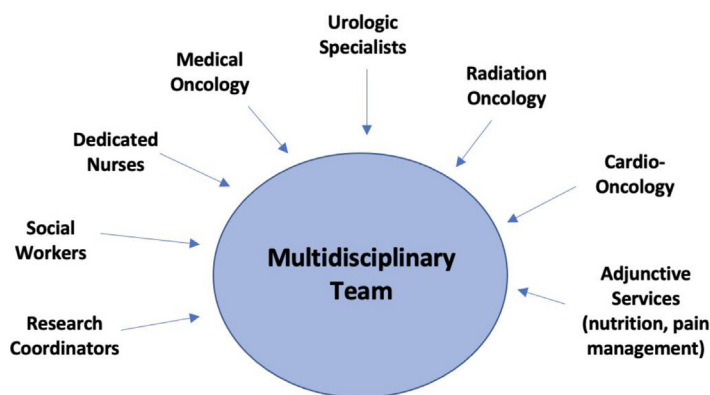


Fig. 1. Components of multidisciplinary teams in urology.

with anorectal malformations are seen in interdisciplinary clinics by specialists in pediatric urology, colorectal disease, gynecology, and gastroenterology and by psychologists, pelvic floor physical therapists, and social workers. For patients who require multiple surgical procedures, an attempt is made to coordinate cases among multiple surgical specialists to reduce hospital visits and anesthetic exposure. This integrated clinic model has been shown to decrease inpatient hospitalizations, clinic visits, rates of adverse anesthetic events, and health care costs and to improve the transition of care into adulthood.^{14–16} Importantly, initiating these integrated clinics does not require a large upfront institutional investment and can financially benefit institutions relatively soon after implementation.¹⁷

Female and Reconstructive Urology

Acquired, degenerative, and congenital neurourological disorders such as cerebrovascular injury, spinal cord injury, multiple sclerosis, Parkinson disease, spina bifida, and cerebral palsy often are associated with urinary, bowel, and sexual dysfunction. Coordinating these patients' care can optimize quality of life and health outcomes.¹⁸ For example, spina bifida clinics are well described as improving patient outcomes by coordinating care from specialties such as orthopedics, neurosurgery, urology, psychiatry, nursing, social work, and physical/occupational therapists. Most of these patients require lifelong care for optimal life expectancy.¹⁹

Interstitial cystitis/bladder pain syndrome (IC/BPS) is one of the most challenging symptom complexes that urologists manage. The syndrome comprises a range of urinary symptoms, including pelvic pain, symptoms in nonpelvic organs, and psychological manifestations. Due to their heterogeneous symptoms, patients often

have seen multiple providers and have received numerous treatments that have failed to achieve adequate symptom control. To address this problem, Beaumont Health created a comprehensive Women's Urology and Pelvic Health Center composed of urologists who are experts in IC/BPS, gynecologists who manage female sexual dysfunction, colorectal surgeons who manage bowel dysfunction, pelvic floor physical therapists, and pain psychologists. Patients also can access acupuncture, medical massage, and nerve blocks provided by anesthesia pain providers. This integrative care model enables the clinic to successfully manage a complex condition by tailoring therapy to individual patients, which has resulted in better symptom management and patient satisfaction.²⁰ This is a good example of how integrative care works.

Complex Genitourinary Oncology Care

Genitourinary malignancies, including cancers of prostate, kidney, bladder, testicle, and penis, are the most common cancers worldwide, and demand for genitourinary cancer care continues to increase amid global population aging.²¹ Nowhere has the integrated care model in urology been better suited or studied than in urologic oncology. MDCs have become the new norm for oncologic care, and some experts even contend that this model should become the standard of care. We describe the implementation and structure of these MDCs and how they relate to patient care.

MULTIDISCIPLINARY CLINIC MODELS IN UROLOGY

In general, MDCs in urologic oncology involve sequential same-day or concurrent visits to multiple providers at one location. This model aims to reduce patients' burden of care (ie, time,

transportation difficulties, and costs), increase their understanding of their disease and treatment options, and mitigate challenges involved in specialist referrals to enhance patients' participation in shared decision making and evidence-based treatment. MDCs facilitate open communication about the risks and benefits of various treatment options and promote informed, collaborative decision making among patients and providers with the ultimate goal of individualizing treatment.²²

Ideally, MDCs involve specialists in urologic oncology, radiation oncology, and medical oncology and offer adjunctive services from wound care and pain management specialists, nutritionists, pharmacists, psychologists, and social workers. Real-time input from radiologists and pathologists also provides invaluable information to guide patient care and management. Patients also are more likely to participate in research and clinical trials when treated in MDCs. Patients whose urologic malignancies are treated at high-volume MDC centers are reported to have better treatment outcomes compared with patients treated in noncentralized care facilities.²³

Tumor Boards

Weekly multidisciplinary team meetings or tumor boards are a vital component of MDCs in urologic oncology. Tumor boards usually comprise representatives from each oncology specialty (surgery, radiation oncology, and medical oncology), often with the addition of genitourinary-focused radiologists and pathologists. Cases are presented in a constructive and collaborative setting. Studies have linked the use of tumor boards with significant improvements in clinical and oncologic outcomes.²⁴

Tumor boards can particularly benefit patients with advanced genitourinary malignancies and those requiring multimodal care.²⁴ In a prospective study of 296 patients with newly diagnosed urologic malignancies, treatment plans changed in 65% of cases after they were discussed at the weekly genitourinary tumor board.²⁵ Treatment changed most frequently in bladder cancer (44%), followed by kidney cancer (36%), testicular cancer (29%), and prostate cancer (22%). The ability of multidisciplinary tumor boards to alter management and tailor care is key for improving patient outcomes.

Bladder Cancer

Bladder cancer is the fifth most common cancer and annually comprises approximately 450,000 new cases and 165,000 deaths globally.²⁶ One-third of these patients will present with advanced

disease. Although MDCs can theoretically improve care for all stages and grades of bladder cancer, the management of muscle-invasive bladder cancer (MIBC) particularly stands to benefit. Patients with MIBC tend to be older (their average age is approximately 73 years) and to have comorbidities. Hence, shared decision making is critical, particularly because treatment involves the use of invasive and potentially morbid modalities. MDCs help foster effective communication among patients and providers regarding the risks and benefits of various treatment options.

Unfortunately, population-based studies indicate that only 50% of patients with MIBC receive curative treatment modalities such as radical cystectomy or trimodal bladder-sparing therapy.²⁷ Even more unsettling is the fact that only 21% of patients receive neoadjuvant chemotherapy before cystectomy, despite level 1 evidence of its benefit.^{28,29} A lack of timely referrals to appropriate tertiary centers or specialty services contributes to these deficits. Collaboration within an MDC mitigates the challenges of cross-specialty referrals, which may increase the use of curative therapies for MIBC. Prior studies also indicate that centralizing patients' care in high-volume centers improves the utilization of radical cystectomy and decreases morbidity and mortality associated with surgery.²³

Although we are still early in the development of MDCs in bladder cancer, some published data imply that this model can improve care. In one study of an MDC, imaging and pathology review of outside records and additional imaging ordered during multidisciplinary evaluation altered bladder cancer staging and treatment recommendations in 36% and 33% of patients, respectively.³⁰ In a study of 233 patients seen over 3 years at a tertiary medical center, the use of a bladder cancer MDC altered imaging interpretation in 26% of cases, changed pathologic interpretation in 29% of cases, changed recommendations for further workup in 42% of cases, altered clinical staging in 28% of cases, and led to treatment modifications in 58% of cases.³¹ In a third study, the percentage of patients who received standard-of-care neoadjuvant chemotherapy increased from 7.7% at baseline to 47.6% after an MDC was implemented.³²

Prostate Cancer

Prostate cancer is the most common nonskin malignancy affecting men in the United States and the second leading cause of cancer mortality.³³ Despite this, the quality of prostate cancer treatment varies tremendously.³⁴ Most care continues

to be delivered by local urologists working outside the setting of a specialized cancer center. In a recent retrospective study of more than 53,000 patients with prostate cancer who were recorded in a Surveillance Epidemiology and End Results (SEER)-Medicare database, there was considerable regional variation in practices such as pre-treatment counseling by urologists and radiation oncologists, bone scans for patients with low-risk prostate cancer, combined androgen deprivation therapy and radiation therapy for patients with high-risk disease, and follow-up by radiation oncologists.³⁵ Variability in care may reflect variations in local physicians' knowledge of clinical guidelines and discrepant coordination among specialties such as urology and radiation oncology. These data, along with numerous prior studies documenting inconsistencies in prostate cancer care, argue for the creation of MDCs that manage both localized and advanced prostate cancer. We outline successful integrated care clinics for both these disease settings.

Localized Prostate Cancer

Patients with low or intermediate-risk localized prostate cancer can potentially access the full gamut of options for management ranging from active surveillance, surgery, and radiotherapy to less common focal therapies such as high-intensity focused ultrasound or cryotherapy. Low and intermediate-risk disease is associated with high rates of survival regardless of treatment modality, but complications and decrements in quality of life vary widely. Given the number of treatment options with equivocal survival, it is key that patients fully understand each modality's risks and benefits so they can choose appropriate treatment. Treatment regret has been described in patients with prostate cancer, with up to 18% reporting that they regretted their treatment choice.³⁶

Studies of MDCs in prostate cancer have demonstrated higher rates of patient satisfaction, more accurate classification of disease, and improved rates of survival and other desirable clinical outcomes as compared with studies of national cancer databases.^{37–39} A successful clinic model has been described by Dr Leonard Gomella at the Sidney Kimmel Cancer Center at Jefferson Health.³⁹ At a weekly MDC, newly diagnosed patients with prostate cancer are seen by urologic surgical oncologists, radiation oncologists, medical oncologists, genitourinary pathologists, and dedicated oncology nurses and care coordinators. Appointments are scheduled for up to 60 minutes, allowing enough time for patients and families to

speak with multiple specialists. The MDC model fosters real-time communication among a range of specialties during both the weekly clinic and the preclinic tumor board. More than 90% of patients have described their experience at this MDC as "good" or "very good." More than 15 years of experience at this MDC suggests that patients with prostate cancer benefit when they receive integrated care.

A multidisciplinary prostate cancer clinic helps patients become fully informed regarding all treatment options by making it easier for them to interact with multiple medical and surgical specialists. In one study, patients treated at a multidisciplinary prostate cancer clinic survived an average of 16.9 months longer compared with matched individuals from an SEER cohort.⁴⁰ In another study of 887 patients with newly diagnosed prostate cancer, 28.7% experienced a change in disease stage or risk category after they were seen at an MDC.³⁷ Using National Comprehensive Cancer Network guidelines as a benchmark, substantial proportions of patients were found to have previously received nonindicated bone scans (23.9%) and/or computed tomography/MRI studies (47.4%). In another study of 1031 patients with prostate cancer, management decisions differed significantly between those who participated in a multidisciplinary diagnostic assessment program and those who did not ($P < .0001$).⁴¹

Advanced Prostate Cancer

Approximately 30% of patients with prostate cancer will develop metastatic disease.⁴² Until recently, these patients had few treatment options, particularly after their disease became castration-resistant (mCRPC). In the not-so-distant era when mCRPC treatment was limited to cytotoxic chemotherapy, urologists often referred patients with mCRPC to medical oncology for further management. However, over the past 10 years, numerous treatment options have become available for patients with advanced prostate cancer. Urologists are now an integral part of the management of these patients and consequently have had to alter their practice structure to provide appropriate prostate cancer care within a rapidly changing treatment landscape.⁴³

The recent expansion of treatment options for advanced prostate cancer heightens the need for multidisciplinary models in which urologists and oncologists collaborate to plan therapy, monitor treatment responses and adverse events, and adopt new treatments as needed.⁴⁴ Due to differences in training, urologists and medical oncologists tend to approach treatment decisions

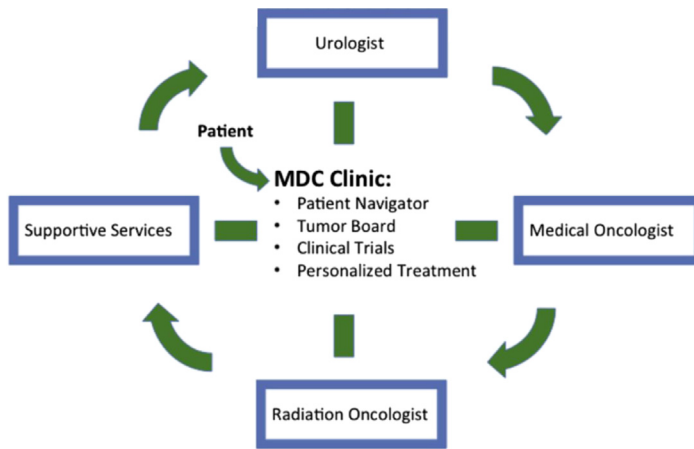


Fig. 2. MDC design in advanced prostate cancer.⁴³

differently; also, patients with prostate cancer often are already established within a urology practice before their disease progresses and they require multidisciplinary treatment. These factors make it especially important to integrate care for advanced prostate cancer, either at a same-day, all-in-one clinic, or virtually through the use of tumor boards or messaging among providers. Key to this multidisciplinary approach is the use of shared managers who can evaluate new patient referrals and schedule visits with multiple providers concurrently.⁴³ Fig. 2 demonstrates an example of MDC in advanced prostate cancer. Management should involve either weekly MDCs or tumor boards that perform multidisciplinary review. The MDC team should include genetic counselors, oncology-dedicated coordinators/nurses, research coordinators, nutritionists, social workers, and pain management specialists.

Multidisciplinary clinics tend to benefit patients with advanced prostate cancer, resulting in superior overall survival among patients with high-risk disease compared with national SEER data.^{39,40} The advantage of MDCs in the treatment of advanced prostate cancer probably results from increased collaboration among subspecialists, the use of multidisciplinary tumor boards to confirm pathologic interpretation and management plans, and the use of evidence-based, state-of-the-art treatment modalities.

Clinical Trials

Clinical oncology trials advance our understanding, treatment, and management of cancer but often suffer from low accrual rates. Surveys indicate that most patients with genitourinary malignancies are interested in participating in clinical research but are unaware of relevant trials and may not even know that participation is an option.⁴⁵ This is

also true of many local urologists, who may be unfamiliar with different types of clinical trials and may lack the time to discuss trial enrollment.⁴⁶ Multidisciplinary clinics typically can offer longer appointment times and multispecialty counseling, which enables patients to receive more thorough counseling on clinical trials as well as coordinated recommendations from multiple providers.

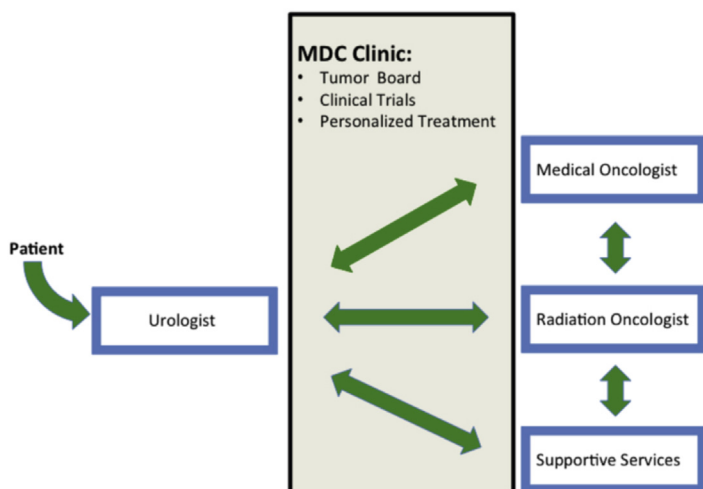
Palliation

Urologists often have long-term relationships with their patients, which uniquely positions them to facilitate hard discussions. Such trust and honest communication are especially important when it comes to discussions about palliative care for patients with metastatic genitourinary disease. Integrated urology and palliative care clinics have therefore been proposed. In a recent pilot study of such a clinic, patients reported improved patient and family satisfaction and were more likely to complete advanced care directives, maintain their quality of life, and die at home or at an inpatient hospice center.⁴⁷ A multidisciplinary approach at the end of life has obvious benefits for patients and has been shown to be feasible and well-received by providers.⁴⁸

Limitations of multidisciplinary centers

Throughout this article, we have described the benefits of integrated, multidisciplinary care. However, several potential disadvantages merit discussion. First, MDCs can be resource-intensive and time-consuming, especially during the early phase of development. Establishing an MDC requires a commitment by not only the institution or health care system, but also the providers and support staff. Coordinating schedules among busy providers is obviously challenging. Patients and families also may be overwhelmed or confused by the

Fig. 3. Example of MDC virtual urologic oncology clinic.⁴³



volume of information or counseling they receive at same-day MDCs. Limited space and lack of funding or staff to establish a comprehensive clinic have also been cited as barriers.¹⁷ In the long-term, however, MDCs can be financially rewarding for both institutions and physicians.

Implementation of integrated care in private practice

Most data on MDC models and outcomes come from studies of tertiary referral practices, such as large academic centers. However, many patients live far from these centers. In one study, patients were less likely to receive care at a multidisciplinary prostate cancer clinic if they lived more than 100 miles from the center.⁴⁹ Although MDCs have been successfully implemented in community or private practice settings, they can be challenging to initiate in these environments due to the infrastructure and resources required. There also tends to be a higher margin of cost savings in community practices, and the very nature of MDCs can, at least initially, make them costly and time-consuming, especially in an already established busy private practice.

Experts recently described a strategy for integrating the management of complex genitourinary malignancies such as advanced prostate cancer.⁵⁰ They recommended that community practices designate leaders who will be responsible for the organization of the MDC, education of physician partners or other staff members, delegating responsibilities, and establishing in-person or virtual partnerships with other specialists. Developing integrated care models is especially important in regions that are underserved by subspecialists, such as genitourinary oncologists and urologic oncologists. In these areas, integrated

urologic care can improve access to treatment in general, as well as access to novel, evidence-based novel treatment modalities.⁵⁰

Future of integrated care

Telemedicine Until recently, technologies for remote communication such as telehealth visits and teleconsultation had not been widely implemented. Early studies of telehealth in urology have shown increased patient satisfaction and access to care and decreased health care costs.⁵¹ However, physicians have been reluctant to adopt telemedicine due to the inherent challenges of implementing new technologies and the variable reimbursement environment.⁵²

The Coronavirus Disease 2019 (COVID-19) pandemic has necessitated widespread and substantial changes in health care delivery, including the routine use of video visits, teleconsultations, and other forms of electronic communication. Physicians have had to rapidly adapt their practices, and there are no long-term data yet on how this transition has affected patient outcomes. However, in pre-pandemic studies of general urology practices, virtual visits were shown to be successful for managing urinary tract infections, uncomplicated urinary stones, incontinence, pelvic organ prolapse, and even uncomplicated, localized prostate cancer.⁵³

So far, there have been only a few descriptions of virtual MDCs and tumor boards for genitourinary malignancies. However, they are an attractive option that could potentially surmount the barriers to implementing single-location MDCs, such as patient travel time, transportation costs, access to transport, and physician time and space limitations.⁴³ Fig. 3 represents how a virtual genitourinary urologic oncology MDC can be organized. In a

virtual cancer care model, patients might see a general provider nearby who helps coordinate oncologic care by communicating with other providers or with a multidisciplinary tumor board; however, successful implementation would require close communication among providers and staff. Virtual multidisciplinary tumor boards and teleconsultation are already occurring to facilitate social distancing during the COVID-19 pandemic. In all likelihood, the increased uptake of telemedicine will persist even after the pandemic ends.

SUMMARY

Integrated care in urology is constantly evolving, but thus far has proven itself in terms of its benefits to patients and its ability to maintain reimbursements in the era of alternative payment models. Integrated care benefits all patients in urology, from pediatrics through transitional care and into adulthood. Multidisciplinary clinics have become the standard of care for managing patients with genitourinary malignancies. Implementing MDCs at both community and tertiary referral centers can be resource-intensive and time-consuming, but doing so can ultimately improve coordination of care and access to treatments that are likely to ultimately reduce long-term health care costs.

CLINICS CARE POINTS

- The goal of integrated health care is to improve patient outcomes and experiences while reducing costs associated with a specific health care delivery.
- Integrated urologic care can particularly benefit patients who have complex pediatric genitourinary conditions, neuro-urologic disorders, interstitial cystitis or bladder pain syndrome, and complex urologic tumors.
- MDCs in urologic oncology typically offer sequential same-day or concurrent visits with multiple providers at one location. Ideally, these should include specialists in urologic oncology, radiation oncology, and medical oncology, as well as wound care and pain management specialists, nutritionists, pharmacists, psychologists, and social workers.
- Tumor boards are a vital part of MDCs in urologic oncology. Input from multiple specialists during case reviews frequently alters treatment plans and can improve clinical outcomes.

- Challenges when implementing MDCs include a considerable upfront investment of time and resources, the need to coordinate providers' schedules, and the risk of overwhelming patients and families by providing a large volume of information at once.
- To establish successful urology MDCs in private practice, designate leaders to take responsibility for organizing the MDC, educating physician partners and other staff members, delegating responsibilities, and coordinating partnerships with other specialists.

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