GISOAPP Onboarding Tool: Optimizing Onboarding for GI Surgical Oncology Advanced Practice Providers

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Abstract

Advanced practice providers (APPs) are key members of the gastrointestinal (GI) surgical oncology team. For newly hired APPs, a comprehensive onboarding program provides guidance to help improve the quality of care provided to patients, as well as APP job satisfaction and retention. There is currently limited information on the components of a structured onboarding program for APPs in GI surgical oncology. The GI surgical oncology APP team identified the need to develop a standardized process with established competencies, education, evaluation, and mentorship. The development of the GI Surgical Oncology APP Onboarding Tool (GISOAPP-OT) provides a comprehensive, 12-month onboarding process that can be adapted for any surgical specialty to standardize and augment training in a complex cancer care environment.

Cancer surgeries are projected to increase by 52% by 2040 worldwide, with more than 80% of newly diagnosed cancers requiring surgery (Perera et al., 2021). Gastrointestinal (GI) surgical oncology is a specialized field of medicine focused on the surgical treatment of cancers within the gastrointestinal tract, which includes the liver, pancreas, gallbladder, bile ducts, esophagus, stomach, small and large intestine, rectum, anus, and retroperitoneal spaces. The surgical oncology team requires a high degree of expertise and skill to manage this complex patient population and achieve the best possible patient outcomes.

Graduate education and training of advanced practice providers (APPs) is broad in scope. Many advanced practice providers (APPs) obtain oncology-specific knowledge from on-the-job training (Hollis & McMenamin, 2014; Hwa et al., 2019). As integral members of the GI surgical oncology team, APPs provide care in all aspects of the patient's cancer journey: perioperative, inpatient, and

outpatient care. However, because the background of APPs varies in both academic training and post-licensing experience, significant variance may exist in both baseline knowledge and skills for newly employed, specialty service APPs.

Historically, the orientation process for all APPs at UT Southwestern Simmons Comprehensive Cancer Center (SCCC) has relied on the hiring department and/or APP leadership to develop and implement appropriate training and establish competencies for APP onboarding. The need for a structured, content-specific, standardized onboarding process for newly hired GI surgical oncology APPs (GISOAPPs) was identified by the GI surgical oncology team to ensure all newly hired APPs have the necessary skills and knowledge to provide high-quality oncology care as part of the GI surgical oncology interprofessional team. This onboarding process provides an organized process to both bridge any knowledge gap and support the transition to specialty care.

Structured onboarding, including an orientation period with education and mentorship, has demonstrated outcomes of improved clinical knowledge and retention of new hires (Langley et al., 2018). Additionally, standardized onboarding practices enhance competency, improve both employee and employer satisfaction, and engage new hires as they integrate into the hiring department (Garcia et al., 2017). Chaney et al. (2022) describes the importance of a mentorship program as a part of the onboarding, with both a clinical and a role development mentor. The mentor is available for questions and answers, provides clinical feedback and coaching, and serves as a trusted colleague and point of contact to confide in (Chaney et al., 2022). Ideally, clinical mentors are established the first day the new APP joins the team and remain available during the entirety of the onboarding process.

Strategies to improve competency and enhance the immersion of new APPs into the institution's culture include not only a clinical mentor but also didactic content to assist in learning the specialty practice while adapting the onboarding specific requirements within each department (Anglin et al., 2021). All these factors were included when developing the GI Surgical Oncology APP Onboarding Toolkit (GISOAPP-OT).

TOOLKIT DEVELOPMENT
Team Selection
The term "onboarding" in this context indicates the time and resources committed initially to ensure APPs have the necessary medical and patient care knowledge to understand team members, workflows, core responsibilities, and national guidelines for patient management (Pickard et al., 2023). Clinical leadership selected two inpatient and three outpatient expert GISOAPPs to create an onboarding tool. An inpatient GISOAPP, identified to lead the project, was tasked with the project goal to develop a comprehensive, GI surgical oncology-specific, APP onboarding toolkit that identified competencies, educational experiences, and peer evaluation for the initial 12 months of employment. The resulting GISOAPP-OT is designed to provide a comprehensive framework for newly hired APPs, strengthen their transition to GI surgical oncology, and optimize the care they provide to patients.

Literature Review
A review of the literature identified no specific guidance for training and onboarding GISOAPPs. The American Society of Clinical Oncology (ASCO) Advanced Practice Provider Onboarding and Practice Guide (American Society of Clinical Oncology, 2020) and Accreditation Council for Graduate Medical Education (ACGME) Program Requirements for Graduate Medical Education in Complex General Surgical Oncology (ACGME, 2023) were reviewed to develop the framework. The ACGME competencies include professionalism, patient care and procedure skills, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, and systems-based practice (ACGME, 2023). The Society of Gynecologic Oncology (SGO) Advanced Practice Provider Onboarding Tool also served as a resource in designing a checklist for the training plan (The Society for Gynecologic Oncology, 2020).

Additional Resources
Cancer treatment guidelines are available through the National Comprehensive Cancer Network (NCCN) and are the standard for evidence-based practice in oncology. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines)

provide current treatment recommendations and algorithms by cancer type, in addition to guidelines for supportive care, specific populations, and detection, prevention and risk reduction (National Comprehensive Cancer Network, 2024). Newly hired GISOAPPs should be familiar with how to access NCCN Guidelines and navigate the algorithms.

Additional resources incorporated into the GISOAPP-OT include state regulations and statutes, organizational policies and procedures, and electronic medical record (EMR) documentation and billing practices. A module that includes orientation to clinical research is also included to educate APPs on the research process and the clinical trials currently open within the division.

GISOAPP ONBOARDING TOOL

The GISOAPP-OT provides education, skills training, mentorship, and structured rotations throughout the first 12 months of employment in inpatient, outpatient, and operating room settings. The framework communicates clear objectives and provides exposure to team roles and responsibilities, regardless of the APP's prior training and background. Current literature, reference materials, and online tools are provided and available for reference during and after the onboarding process.

An outline and checklist with incorporated timeline guidance is now standard; time with other clinical teams and support services, such as gastroenterology, interventional radiology, and wound care, are also integral to the onboarding process (Tables 1 and 2). The APP initials and dates each experience and discusses the encounter with the assigned mentor. The checklist can be tailored to incorporate the APP's past clinical experience, confidence level, and learning style. Although the onboarding process is 12 months, APPs are credentialed and privileged prior to starting at our cancer center and able to provide some independent patient management within the first three months.

Outcomes

GISOAPPs within SCCC and a large, public hospital served by UT Southwestern GI surgical oncologists piloted portions of the GISOAPP-OT and provided feedback (*N = 2*). The GISOAPPs stated their onboarding would have been significantly enhanced if the entire tool had been implemented. Additionally, they stated the tool was "organized and provided an overview of all subject areas," while also noting APPs should see and participate in the fluidity of patient care while being a part of a comprehensive learning environment. The GISOAPP-OT provides this level of engagement and detailed information to the newly hired clinician. Additional input was that ostomy care education should include patient issues that may occur weeks after an ostomy placement, such as peristomal irritation, leakage, high ileostomy output, and learning to adapt to body habitus changes. This recommendation was subsequently incorporated into the GISOAPP-OT. Physician and APP supervisor feedback showed the tool streamlined the onboarding process, prioritizing elements that may have been overlooked previously.

Limitations

Limitations for this project include a small number of participants to date, making comprehensive assessment somewhat limited. Additionally, both participants were new graduates, making it unclear how prior experience will impact the results of using the tool. Assessing knowledge attainment is completed by observation, which may not be optimal for a clinical setting. Additionally, it is notable that the extensive onboarding process is tailored to the needs for the department of surgical oncology APPs at a single institution; modifications at other institutions may be required. Although leadership structures and surgeries performed may differ from one institution to another, this onboarding tool can be tailored to accommodate the needs of almost any cancer center.

CONCLUSION

Team expertise is essential for optimal patient care. The GISOAPP-OT provides a comprehensive, standardized educational tool, intended to ensure GISOAPPs are competent and confident to provide and deliver consistent, high-quality patient care. Although leadership structures and surgeries performed may differ between institutions, this onboarding tool may be tailored to accommodate the needs of almost any specialized services within any cancer center. ●

Table 1. Overview of GI Surgical Oncology APP Onboarding Tool

Objectives
- Identify the types of gastrointestinal (GI) malignancies
- Interpret staging, treatment guidelines, and apply best available evidence to patient care
- Identify cancer surgery types and demonstrate knowledge of associated complications
- Employ patient and family-centered communication for shared-decision making
- Demonstrate professional behavior in complex or stressful situations

Goals

Move from novice to expert in the holistic care of GI surgical oncology patients through education, experience, and training related to the following competencies:
- Demonstrate knowledge of GI anatomy and anatomic variations
- Demonstrate basic knowledge of GI malignancy cancer types and staging
- Analyze medical, radiation, surgical, and palliative approaches to patient management and development of treatment plans
- Identify standard multimodal antineoplastic agents, including indications and contraindications
- Describe indications for radiation therapy
- Apply knowledge of cancer biology into medical decision-making
- Describe common hereditary cancer syndromes and genetic mutations associated GI malignancies
  » Lynch syndrome, hereditary diffuse gastric cancer syndrome, familial adenomatous polyposis, Peutz-Jeghers syndrome, Gardner syndrome
  » *BRCA1/2*, *CDH1* gene mutation
- Differentiate between ostomy types and identify common complications associated with each type
  » Colostomy
  » Ileostomy
- Implement use of National Comprehensive Cancer Center Clinical Practice Guidelines in Oncology (NCCN Guidelines) for staging, treatment, supportive care, and surveillance
- Propose and discuss treatment plans for surgical intervention and post-operative management to optimize outcomes in patients with GI malignancies
- Distinguish between resectable, borderline resectable, locally advanced, and metastatic cancer in staging and patient management
- Demonstrate basic knowledge of advanced diagnostic techniques
  » Endoscopic retrograde cholangiopancreatography (ERCP)
  » Endoscopic ultrasound (EUS)
  » Percutaneous biliary drains and other drain management
- Assess the limitations and measurement of tumor markers in patient management
- Appraise and implement appropriate imaging techniques (radiography, fluoroscopy, computed tomography) to diagnose, recommend treatment, and monitor patients
- Recognize post-operative complications and develop effective management strategies
- Identify and manage uncomplicated and complicated cancer and cancer treatment-related symptoms
- Propose management strategies for medical disorders and surgical complications in patients with GI neoplasms during the postoperative period
- Apply knowledge of common medical comorbidities to optimize outpatient management
- Assess need for consultation with other teams such as GI/biliary, infectious disease, interventional radiology, palliative care, hospice/end-of-life care
- Understand the different phases of oncologic clinical trials
- Counsel patients and families regarding their diagnosis, prognosis, and associated complications, with supervision
- Report patient safety events through institutional reporting systems
- Demonstrate knowledge of and describes institutional quality improvement initiatives
- Develop a plan to optimize personal and professional well-being
- Demonstrate openness to performance feedback

Note. APP = advanced practice provider; AJCC = American Joint Committee on Cancer; BRCA = breast cancer gene; CDH1 = cadherin-1 gene; DGE = delayed gastric emptying; DIC = disseminated intravascular coagulation; EUS = endoscopic ultrasound; ERCP = endoscopic retrograde cholangiopancreatography; GEJ = gastroesophageal junction; GI = gastrointestinal; GIST = gastrointestinal stromal tumor; HCC = hepatocellular carcinoma; HIPEC = hyperthermic intraperitoneal chemotherapy; IPMN = intraductal papillary mucinous neoplasm; LAMN = low-grade appendiceal mucinous neoplasm; LAR = low anterior resection; NCCN = National Comprehensive Cancer Network; SCC = squamous cell carcinoma; TNM = tumor, node, metastasis.

Table 1. Overview of GI Surgical Oncology APP Onboarding Tool (cont.)

Medical Knowledge

Cancer/Tumor Types:
- Esophageal cancer
  - » Adenocarcinoma versus squamous cell carcinoma (SCC)
- Gastroesophageal junction (GEJ) cancer
  - » Siewert types I, II, III
- Gastric cancer (adenocarcinoma)
- Intestinal
- Diffuse type
- Ampullary vs. duodenal adenocarcinoma
- Pancreatic tumor/cancer
- Adenocarcinoma vs. SCC
- Intraductal papillary mucinous neoplasm (IPMN)
- Gallbladder/bile duct cancer (cholangiocarcinoma)
- Liver cancer
- Hepatocellular carcinoma (HCC)
- Liver metastasis
- Large bowel cancer
- Rectal adenocarcinoma
  - » Adenocarcinoma
  - » Lymphoma
- Colon adenocarcinoma
  - » Mucinous
  - » Signet ring
- Low grade appendiceal mucinous neoplasm (LAMN)
- Appendiceal adenocarcinoma
- Anal cancer
  - » Adenocarcinoma versus SCC
  - » Basal cell
  - » Melanoma
- Neuroendocrine and carcinoid tumors
- Sarcomas
- Leiomyosarcoma
- Liposarcoma
- Gastrointestinal stromal tumors (GIST)
- Carcinoma in situ

Cancer Staging:
- National Cancer Institute staging criteria for each cancer type
- TNM staging system
- American Joint Committee on Cancer (AJCC) Cancer Staging System

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Table 1. Overview of GI Surgical Oncology APP Onboarding Tool (cont.)

Patient Evaluation and Operative Management
Common Surgeries/Procedures:
- Esophagectomy
  - » Ivor Lewis
  - » Techniques: transthoracic vs. trans-hiatal
- Gastrectomy
  - » Total gastrectomy versus partial
- Pancreas surgery
  - » Pancreaticoduodenectomy (Whipple)
  - » Distal pancreatectomy and splenectomy
  - » Total pancreatectomy
- Cholecystectomy
- Liver resection
  - » Segmentectomy
  - » Partial
  - » Lobectomy
- Colorectal resection
  - » Colectomy
  - » Hemicolectomy
  - » Proctocolectomy
  - » Hartmann's
  - » Low anterior resection (LAR)
  - » Abdominoperineal resection (APR)
  - » Local excision (LE)
- Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC)
- Palliative surgery
  - » Gastrojejunostomy
  - » Small bowel resection
  - » Feeding tube placement (gastrostomy tube vs. jejunostomy tube)

Patient Care Post-Operative Management
Post-operative complications
- Abdominal fluid collection
- Anastomotic leak or stricture
- Bile leak
- Bleeding
- Constipation
- Delayed gastric emptying (DGE)
- Diarrhea
- Disseminated intravascular coagulation (DIC)
- Fistula
- Hernia
- High ostomy output
- Hypercalcemia
- Ileus
- Infection/sepsis
- Neutropenic fever
- Obstruction
- Other abdominal fluid collection
- Thrombosis

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Table 2. UTSW GI Surgical Oncology APP Onboarding Tool

Task	Date complete	APP initials	Preceptor initials	Notes
	Months 0-3			
Common Tasks for All Roles 0-3 months				
Complete state- and department-specific written agreements				
Department orientation				
Attain hospital privileges				
Attain EMR access & training				
Create EMR smart phrases & templates				
Attend GI Surg Onc conferences, grand rounds, tumor board(s)				
Observe in GI surgical oncology environments: inpatient, outpatient, OR				
Observe GI procedures: EGD with duodenal stent, GJ tube placement, colonoscopy, ERCP with stent, EUS with FNA				
Observe IR: drain placement, PTC placement, GJ placement, para/thoracentesis				
Observe wound care: focus on wound vac and ostomy care				
Register for NCCN account and review guidelines for GI malignancies				
Become familiar with institutional policies regarding DNR, declaring death, surgical consent components, social media, APP scope of practice, reviewing online privileges				
Inpatient 0-3 months				
Observe daily rounds				
Become familiar with GI chemotherapy regimens: Online ONS, NCCN, and ASCO courses (see end of table for suggestions)				
Become familiar with inpatient structure and team members (nursing, social workers, case management, dietician, rapid response team)				
Become familiar with consult services (ID, IR, GI, Wound Care, etc.)				
Become familiar when radiation therapy may be recommended				
Recognize concerning findings for in-patient exam/labs/imaging				
Assess patients with status change, nursing concerns: seek guidance with assessment and plan				

Note. EMR = electronic medical record; GI = gastrointestinal; Surg Onc = surgical oncology; OR = operating room; EGD = esophagogastroduodenoscopy; GJ = gastrojejunostomy; ERCP = endoscopic retrograde cholangiopancreatography; EUS = endoscopic ultrasound; FNA = fine-needle aspiration; IR = interventional radiology; PTC = percutaneous transhepatic cholangiography; VAC = vacuum-assisted closure; NCCN = National Comprehensive Cancer Network; DNR = do not resuscitate; APP = advanced practice provider; ONS = Oncology Nursing Society; ASCO = American Society of Clinical Oncology; ID = infectious disease; RT = radiation therapy; SE = side effects; PCA = patient-controlled analgesia; H&P = history and physical; HIPEC = hyperthermic intraperitoneal chemotherapy; HAIP = hepatic arterial infusion pump; DC = discharge; HHC = home health care; PT = physical therapy; f/u = follow-up; DGE = delayed gastric emptying; DNI = do not intubate; POLST = physician orders for life-sustaining treatment; NGT = nasogastric tube; OGT = orogastric tube.

Table 2. UTSW GI Surgical Oncology APP Onboarding Tool (cont.)

Task	Date complete	APP initials	Preceptor initials	Notes
Inpatient 0-3 months (cont.)				
Attend daily patient care meetings (where applicable)				
Formulate daily patient plans				
Formulate multi-day plans with assistance: begin to see larger picture				
Outpatient 0-3 months				
Observe surveillance, pre-op, & problem-focused visits				
Observe MDs and APPs in clinic				
Observe biopsies/office procedures				
Observe postop wound management/problem-focused surgical visits in clinic				
Observe wound VAC management				
Attend Whipple class for patients				
Understand GI cancer staging/grading				
Become familiar with GI chemotherapy regimens: Online ONS, NCCN and ASCO courses (see end of table for suggestions)				
Verbalize basic indications for radiation therapy				
Return patient calls (with guidance if needed)				
Begin to see patients (on another provider schedule, without time restriction; assistance as needed)				
Explain routine cancer screenings to patients				
Triage questions from staff (RN, MA, etc.)				
Operating Room 0-3 months				
Perform H&P and verify surgical consent				
Observe time out and scrubbing techniques				
OR observation: Total gastrectomy, partial gastrectomy, Ivor Lewis, Whipple, distal panc/splenectomy, partial liver resection, HIPEC, partial small bowel and/or colectomy, ostomy creation				
Know patient positioning in OR				
Confirm surgical site				
Perform abdominal prep				
Assist with laparoscopic port placement				
Aid in transfer of patient to stretcher				
Accompany patient to PACU				
Attend suture training class				

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Table 2. UTSW GI Surgical Oncology APP Onboarding Tool (cont.)

Task	Date complete	APP initials	Preceptor initials	Notes
	Months 3-6			
Common tasks 3-6 months				
Implement basic pain regimen				
Implement antiemetic regimen				
Implement bowel regimen				
Understand narcotic alternative options				
Observe hepatic arterial infusion pump (HAIP) access				
Inpatient 3-6 months				
Initiate pain-controlled analgesia (PCA) orders				
Convert pain medications (IV to PO)				
Daily rounding with guidance				
Participate in daily patient care meetings (care coordination, etc.)				
Prioritize inpatient tasks based on patient needs				
Act on abnormal exam/lab/imaging findings with assistance				
Formulate multi-day plans with minimal assistance				
Complete notes in EMR (H&P, consult, progress note, pre-op)				
Complete biopsy/skills training, if needed				
Articulate the role and types of genetic and genomic tests				
Articulate when to refer to genetic testing				
Describe the basics of radiation therapy (RT) and post-RT complications, long-term SE's				
Articulate anticoagulation management (when to hold for procedures, IVC filter, etc.)				
Perform clinic exams independently				
Respond to patient phone calls/messages with minimal assistance				
Perform minor wound care/packing				
Manage limited independent clinic (longer visit length and lower acuity); another provider available				
Operating Room 3-6 months				
Demonstrate knowledge of anatomy				
Demonstrate knowledge of cautery/cutting devices				
Diagnostic laparoscopy: first assist with at least 5 procedures				

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Table 2. UTSW GI Surgical Oncology APP Onboarding Tool (cont.)

Task	Date complete	APP initials	Preceptor initials	Notes
Operating Room 3-6 months (cont.)				
Prep and drape patient				
Foley/NGT/OGT placement				
Anticipate OR needs/next steps				
Perform skin closure				
Place dressings at end of procedure				
Complete post-op note in EMR				
Complete post-op orders in EMR				
Sign out patient to appropriate surgical service				
Months 6-9				
Common tasks 6-9 months				
Access HAIP with supervision and independently				
Inpatient 6-9 months				
Daily rounds. Appropriately ask for assistance.				
Develop plan of action for patient & communicate to team/physician				
Anticipate patient needs on discharge (DC) at time of admission to facilitate smoother DC (HHC, PT, f/u visits)				
Utilize consultants and collaborate with them				
Respond to service admissions, consults, transfers with assistance				
Assist with service sign in/out				
Outpatient 6-9 months				
Discuss side effect profiles/complications that occur post-op				
Manage common post-op complications (ileus, DGE, leaks, fluid collections, etc.)				
Verbalize various operations/procedures for GI malignancies				
Manage independent clinic (with progressively decreased visit length and increased acuity), another provider available				
Manage post-op wounds/problem-focused visits independently				
Manage complicated wound care (wound vac changes)				
Perform office procedures independently				
Operating Room 6-9				
Perform fascial closure				

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Table 2. UTSW GI Surgical Oncology APP Onboarding Tool (cont.)

Task	Date complete	APP initials	Preceptor initials	Notes
Months 9-12				
Inpatient 9-12 months				
Make daily rounds and manage patients with minimal to no assistance				
Recognize abnormal exam/lab/imaging with minimal/no assistance				
Act on abnormal exam/lab/imaging findings & notify appropriate team members of the team appropriately				
Accurately describe current clinical picture of patient to attending MD				
Communicate appropriate information between consultant services on complex patients				
Facilitate management of complex GI Surg Onc patient & act as a bridge between services				
Time management of daily tasks; prioritize most important to least important				
Outpatient 9-12 months				
Perform simple wound care and drain checks				
Identify indications for DNR/DNI/POLST				
Manage independent clinic without routine guidance				
Initiate discussion with patients about goals of care				
Operating Room 9-12 months				
Robotic cases: first assist 20 cases				
Bowel resection: first assist 10 procedures				
Months 12+				
Inpatient 12+ months				
Round daily and manage patients independently				
Consistently evaluate patient using appropriate medical judgement				
Develop care plan with minimal assistance				
Coordinate sign in/out to coverage teams				
Demonstrate independent & effective use of consultants				
Respond to service admissions, consults, transfers with minimal assistance				
Recognize acute patient events and appropriately triage with minimal assistance				
Recognize barriers to hospital DC and coordination of care. Work to reduce length of stay.				
Function as a mentor for residents and new APPs				

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Table 2. UTSW GI Surgical Oncology APP Onboarding Tool (cont.)

Task	Date complete	APP initials	Preceptor initials	Notes
Outpatient 12+ months				
Evaluate post-op patient				
Increase volume of patient visits as per practice productivity goals				
Mentor residents and new APP members				
Operating Room 12+ months				
Available for assistance with any OR case				

Suggested online educational courses: Essentials in Oncologic Emergencies for the Advanced Practice Provider (ONS); Essentials in Advanced Practice Cancer Treatments (ONS); Cancer Genetics and Hereditary Syndromes (ONS); Introduction to Colorectal Cancer (ASCO); Introduction to Imaging in Oncology (ASCO); Tumor Grading (ASCO); Tumor Staging (ASCO); Management of MSI-H/dMMR Upper and Lower GI Cancers (NCCN); Updates in the Management of Locally Advanced Rectal Cancer (NCCN); Updates in the Clinical Management of Pancreatic Cancer (NCCN).

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