Multidisciplinary Approach to Complex Cancer & GI Surgery at CRMC

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Mission Statement

To Create State of the Art and Evidence-based Approach to Complex GI Cancer & Surgery in the Central Valley of California
Overview

1) CRMC Infrastructure
2) Quality Improvement
3) CRMC / UCSF Fresno Programs
4) Collaboration
Traditional Approach

• Treatment Silos
• Sub-optimal collaboration & Fractionated care
• Poor patient navigation
CRMC Infrastructure

- Multi-D Approach to Pt Care
  1. GI Cancer population
  2. Complex GI pt population
Multidisciplinary Care of Cancer

• Multidisciplinary care has become accepted as the optimal mechanism for delivering care in oncology.

• The Commission on Cancer & the American College of Surgeons require multidisciplinary cancer conferences for the accreditation of health centers delivering multidisciplinary care.
Multidisciplinary HPB/GI Tumor Board Conference

Moderated by
Babak “Bobby” Eghtesail, M.D., FACS
Assistant Clinical Professor, UCSF
Amir Fathi, M.D.
Assistant Clinical Professor, UCSF
Date
Weekly, every Thursday
Time
7:30 am — 8:30 am
Location
Community Regional Medical Center
Sequoia West
Description
Patients presented will be evaluated in a prospective manner and an assessment plan is created with input from a multi-disciplinary panel based on current national and international guidelines. The assessment plan will be documented in EPIC. A copy will be sent to the patient’s primary care as well as all involved physicians in their care.

Full breakfast provided.
Contact
1.844.5FOREGUT

NCCN Statement

All cancer patients must be evaluated by a multi-disciplinary tumor board prior to initiation of treatment.
Tumor Board

- Weekly review of 10-12 Patients
  - Representation from 15 different disciplines:
    - GI, IR, Diag Rad, Path, Surgery, Genetics, Med/Onc, Rad/Onc, Palliative, Navigator, Social Work, Research, Nutrition, Clinical Trial, PCP, Residents
- Open Forum Model
- Review Volume:
  - 2014: **325 pts**
  - 2015: **369 pts**
  - 2016: **440 pts**!
Infrastructure

Education

More and more patients are going to the Internet for medical advice. To keep my practice going, I changed my name to Dr. Google.

www.UniversityMds.com/ForegutCancer
Infrastructure: **CRMC Support Services**

- Dedicated NP
- Compass Clinic
- Navigator
- Social Work
- Nutritionist
- Support Groups
- Palliation

**1-844-FOREGUT**
Quality Improvement Projects

• CRMC Centralized inpatient care
  – CRMC 7th floor – Med/Surg Oncology & Complex GI Surgery
  – Dedicated CHMG Hospitalists
  – Case management, Nutrition, Volunteer Services
  – Animal Therapy, Music Therapy, Chaplain Services
  – Get Well Network

• Dedicated OR teams:
  – Anesthesia
  – OR Staff, Rooms
  – Advanced Technology:
    • Ablation, IntraOp US, Liver infusion pump, HIPEC system, TEE, Vigelio
    • Next Generation Robot
Quality Improvement Projects

- Inpatient & Outpatient Nursing education
  - Scheduled Lecture Programs (OR, ICU, Med/Surg)
    - Perioperative care
    - Surgical postop care
    - Surgical complications
    - Discharge planning
    - Postoperative Care-path implementation
Quality Improvement Projects

- CRMC Quality Paradigm Shift
  - NSQIP
    - LoS, ReAdmit
  - ERAS
    - DVT & SSI Reduction Programs
    - Care Path protocols
CRMC / UCSF Fresno Programs
CRMC / UCSF Fresno Programs

• **Pancreas**
• Liver and Biliary System
• HIPEC & Cytoreductive Surgery
• Surgical Nutrition Program
• Robotic Surgery
• Comprehensive Abdominal Wall Reconstruction Program
Pancreas

1. Pancreatic CA Screening Program
2. Pancreatic Cyst Clinic
3. Chronic Pancreatitis Program
4. Pancreatic Cancer Patient Support Group
5. Pancreas Research
Central Valley Cancer Stats

• Each year more than 10,000 residents of the Central Valley are diagnosed with invasive cancer.

• ~4,000 deaths from cancer occur each year as well.

• Due to the rapid growth of the population in the Valley, these numbers will increase in the future despite the fact that rates are declining for many types of cancer.
In 2017 an estimated 53,670 Americans will be diagnosed with pancreatic cancer in the U.S., and over 43,090 will die from pancreatic cancer.

Pancreatic cancer is the 3rd leading cause of cancer-related death in the United States surpassing breast cancer.

It is expected to become the 2nd leading cause of cancer-related death in the US by the year 2020, surpassing colorectal cancer.
Pancreatic Cancer

Patrick Swayze
Joseph Cardinal Bernardin, Archbishop of Chicago
Judge Ruth Bader Ginsburg
Gene Upshaw
Luciano Pavarotti
Fred Gwynne
Michael Landon
Sheikh Zayed
Steve Jobs
Count Basie
Pancreatic Cancer
Screening Program

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Relative Risk</th>
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<tbody>
<tr>
<td><strong>Familial pancreatic cancer:</strong></td>
<td></td>
</tr>
<tr>
<td>2 first-degree relatives affected</td>
<td>18</td>
</tr>
<tr>
<td>3 first-degree relatives affected</td>
<td>57</td>
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<tr>
<td><strong>Hereditary pancreatic cancer syndromes:</strong></td>
<td></td>
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<tr>
<td>BRCA2 mutation</td>
<td>5.9</td>
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<tr>
<td>Familial atypical multiple mole melanoma</td>
<td>16</td>
</tr>
<tr>
<td>Peutz-Jeghers Syndrome</td>
<td>36</td>
</tr>
<tr>
<td>Hereditary pancreatitis</td>
<td>50</td>
</tr>
<tr>
<td><strong>Cigarette smoking:</strong></td>
<td></td>
</tr>
<tr>
<td>Positive family history of pancreatic cancer</td>
<td>3.7</td>
</tr>
<tr>
<td>Diabetes &gt; 20 years</td>
<td>2</td>
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</tbody>
</table>
Pancreatic Cyst Clinic

• Multi – D approach
  – GI Endoscopy, Surgery, Pathology and Radiology
  – Database
  – Regular Follow ups
Support Group

Meets Monthly Buddy System

Annual Meeting Community
Chronic Pancreatitis Program
Chronic Pancreatitis Program
Neoadjuvant Therapy for Pancreatic AdenoCarcinoma
Surgery-First approach to Pancreatic Cancer

1-2 wks ↔ 6-10 wks ↔ Adj Therapy

Recovery from surgery

OR

Diagnosis, staging and preparation for surgery

CT

What we know:
No progress in decades

What we do not know:
The biologic impact of surgery first
Survival after Resection of Pancreatic Adenocarcinoma: Results from a Single Institution over Three Decades

Jordan M. Winter, MD\textsuperscript{1}, Murray F. Brennan, MD\textsuperscript{1}, Laura H. Tang, MD\textsuperscript{2}, Michael I. D’Angelica, MD\textsuperscript{1}, Ronald P. DeMatteo, MD\textsuperscript{1}, Yuman Fong, MD\textsuperscript{1}, David S. Klimstra, MD\textsuperscript{2}, William R. Jarnagin, MD\textsuperscript{1}, and Peter J. Allen, MD\textsuperscript{1}  Ann Surg Oncol (2012) 19:169–175

FIG. 3 Long-term survival after pancreatectomy for pancreatic cancer (1-year survivors). 1980s, median = 23.2 months; 1990s, median = 25.6 months; 2000s, median = 24.5 months. \( P \) values compare the specified decade to the 1980s.
Neoadjuvant Systemic Therapy

- **Overall survival (n=86)**
- **Resected (n=64)**
- **Unresected (n=22)**

<table>
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<tr>
<th>Group</th>
<th>N</th>
<th>Median Survival</th>
<th>5-yr surv</th>
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<tbody>
<tr>
<td>Resected</td>
<td>64</td>
<td>34 mo</td>
<td>27%</td>
</tr>
<tr>
<td>Not Resected</td>
<td>22</td>
<td>7 mo</td>
<td>0</td>
</tr>
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</table>
Surgical Options

- Whipple
  - Vascular reconstruction (Portal Vein and Hepatic Artery)

- Central Pancreatectomy
  - Robotic, Laparoscopic

- Distal Pancreatectomy
  - Robotic, Laparoscopic

- Total Pancreatectomy
Research

• Publication & Presentation
  – ACS and North Cal
  – SAGES

• Projects:
  – **K-Ras** detection in Liquid Biopsy
  – SEER & NSQIP database Outcome research
  – Next Generation Genetic Sequencing
CRMC / UCSF Fresno Programs

- Pancreas
- **Liver and Biliary System**
- HIPEC & Cytoreductive Surgery
- Surgical Nutrition Program
- Robotic Surgery
- Comprehensive Abdominal Wall Reconstruction Program
1. HCC Program
2. Cirrhosis and Portal HTN Optimization Program
3. NASH, NAFLD Program
4. Liver and Biliary Research
Treatment Options CRMC

1. Surgical resection (Robotic, laparoscopic & open)
2. Liver Transplantation (UCSF)
3. Radiofrequency Ablation (RFA)- percutaneous, lap, open
4. Microwave Ablation
5. Trans-Arterial Chemoembolization (TACE)
6. Radio-Embolization (Yttrium\textsuperscript{90} beads)
7. Systemic Chemotherapy
8. Intra-arterial chemotherapy pump infusion
9. Radiation Therapy (SBRT, IMRT)
10. Isolated Liver Perfusion
11. Multi-modality approach
12. Clinical trials
13. Palliative Care
Complete response of giant HCC after Tran-Arterial Chemo-Embolization (TACE)

Initial CT scan

Follow-up CT

Residual calcified fibrosis at HCC sites
Liver Research

- Cholangiocarcinoma
- HCC Screening Program in Fresno County
  - Collaboration with Fresno State and County
- Ablation Plus TACE for Unrestable HCC
- Clinical Trial:
  - TACE vs. Y90 Treatment for Unrestable HCC
  - City Wide Collaboration
CRMC / UCSF Fresno Programs

- Pancreas
- Liver and Biliary System
- **HIPEC & Cytoreductive Surgery**
- Surgical Nutrition Program
- Robotic Surgery
- Comprehensive Abdominal Wall Reconstruction Program
HIPEC

- New Hopes for Stage IV cancers
- Cytoreductive Surgery and Heated Intraperitoneal Chemotherapy (HIPEC)
  - Few centers in California are offering
  - One of the centers with good results
  - National and International collaboration
Current Indications for CRS & HIPEC

- Large volume of noninvasive peritoneal carcinomatosis or sarcomatosis.
- Peritoneal mesothelioma.
- Low volume peritoneal seeding from invasive cancer.
- Perforated gastrointestinal cancers.
- Cancer adherent to adjacent organs or structures.
- Gastrointestinal cancer with positive peritoneal cytology.
- Gastrointestinal cancer with ovarian involvement.
- Tumor spill intraoperatively.
- Systemic chemotherapy for recurrent ovarian cancer after a long disease-free interval.
- Palliation of patients with malignant ascites.
Preoperative CT scan demonstrating extensive metastases from appendix cancer (cancer outlined in red)

No residual disease 8 months following complete cytoreductive surgery and HIPEC
Prerequisite for HIPEC surgery:
Complete macroscopic cytoreductive surgery (CRS)
HIPEC – Closed Technique

Belmont® Hyperthermia Pump
# Appendiceal Cancer – CRS+HIPEC

<table>
<thead>
<tr>
<th>Chief investigator</th>
<th>Median survival (months)</th>
<th>Survival rates (%)</th>
<th>Disease status (%)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>1-year</td>
<td>2-year</td>
</tr>
<tr>
<td>Sugarbaker\textsuperscript{30}</td>
<td>501</td>
<td>156</td>
<td>–</td>
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<td>Zoetmulder\textsuperscript{36}</td>
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<td>90</td>
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<tr>
<td>Loggie\textsuperscript{40}</td>
<td>110</td>
<td>64</td>
<td>80</td>
</tr>
<tr>
<td>Piso\textsuperscript{42}</td>
<td>28</td>
<td>51</td>
<td>–</td>
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<tr>
<td>Deraco\textsuperscript{44}</td>
<td>33</td>
<td>NA</td>
<td>96</td>
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<td>Glehen\textsuperscript{46}</td>
<td>27</td>
<td>NA</td>
<td>100</td>
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<tr>
<td>McGregor\textsuperscript{47}</td>
<td>11</td>
<td>NA</td>
<td>–</td>
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<tr>
<td>Morris\textsuperscript{48}</td>
<td>50</td>
<td>NA</td>
<td>89</td>
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CRMC / UCSF Fresno Programs

- Pancreas
- Liver and Biliary System
- HIPEC & Cytoreductive Surgery
- **Surgical Nutrition Program**
- HPB Robotic Surgery
- Comprehensive Abdominal Wall Reconstruction Program
Surgical Nutrition

1. Perioperative Nutritional Assessment Program
   – ASPEN Malnutrition Criteria
   – Perioperative Nutritional Conditioning
   – Immunonutrition (Impact)

2. Postoperative Diet Optimization & Education

3. Postoperative Diabetic Control
   – Artificial Pancreas
Surgical Nutrition Research

- **Clinical Trials:**
  - Effects of perioperative conditioning on postoperative outcomes
    - *Grant from Fresno State*
  - Enzyme replacement conditioning for patients with pancreatic head cancers during Neoadjuvant treatment
CRMC / UCSF Fresno Programs

- Pancreas
- Liver and Biliary System
- HIPEC & Cytoreductive Surgery
- Surgical Nutrition Program
- **Robotic Surgery**
- Comprehensive Abdominal Wall Reconstruction Program
• Multi-Disciplinary Robotics Program
  – Urology
  – Urogynecology
  – General Surgical Oncology
  – Gynecologic Oncology
  – OMFS Oncology
  – Thoracic Oncology
Robotic Surgery Program CRMC

- Case Observation Site
- One of a dozen programs nationally performing Robotic HPB Cancer surgery
- Advanced Robotics Research
  - Application of new Tech
    - Firefly
  - Intuitive Grant
    - Robotic Hernia Repair outcomes
Firefly Fluorescence Imaging

- Improved visualization using Fluorescence imaging
  - Tumor visualization
  - Vascular supply
  - Biliary tree (Cholangiography)
  - Margin status
Robotic Surgery Program CRMC

CRMC was the 1st Hospital in Central California

1. 1st Robotic Common Bile Duct Exploration
2. 1st Robotic *Single Site Cholecystectomy (Si & Xi systems)*
3. 1st Robotic Nissen Fundoplication
4. 1st Robotic Distal Pancreatectomy
5. 1st Robotic Central Pancreatectomy
6. 1st Robotic Liver resection
7. 1st Robotic Heller Myotomy
8. 1st Robotic Gastrectomy (partial and total)
9. 1st Robotic Distal Esophagectomy
10. 1st Robotic Splenectomy
11. 1st Robotic Small bowel GIST resection
12. 1st Robotic Pelvic Melanoma excision
13. 1st Robotic Excision of mesenteric tumors
14. 1st Robotic Base of tongue tumor resection
15. One of the 1st to use *Firefly* technology in the nation
   • Robotic Colectomies
   • Robotic APR
CRMC / UCSF Fresno Programs

- Pancreas
- Liver and Biliary System
- HIPEC & Cytoreductive Surgery
- Surgical Nutrition Program
- HPB Robotic Surgery
- **Comprehensive Abdominal Wall Reconstruction Program**
Program Coverage Overview

- 42.9% PRIVATE PAY
- 29.3% MEDICAL
- 26.5% INSURANCE CONTRACTED
- 0.7% MEDICARE
- 0.7% OTHER

SUITE 220

University | Specialty Surgery Associates
Affiliated with
UCSF

School of Medicine
Fresno Medical Education Program
Amir Fathi, M.D.
Babak “Bobby” Eghbalieh, M.D., FACS
Thank You
CRMC HPB/Complex GI Multi Disciplinary Team