Embracing Innovation: The Process of Research & Publication in Practice

Karol A Gutowski, MD, FACS



TO ADD

- How to evaluate a new product
 - Efficacy
 - Cost (use real company "estimates")
 - Practice incorporation
- Quill experience
- Rep calling office asking about new technology
- Financial analysis

 Case studies
 Eval a product or device
 Use biomed student

Disclosures

RTI Surgical - Advisor Suneva Medical - Instructor Angiotech/Surgical Specialties - Advisory Board Viora - Nonpaid Speaker & Investigator

Learning Objectives

- Understand the innovation cycle
- Resources needed to innovate
- Industry relationships & partnerships
- Regulatory issues (HIPPA, IRB)
- Presentation & publication
- Common pitfalls

General Concepts

- Scientific approach to innovation
- Ask the question
- Set up the study
- Do the study
- Spread the news!
- Consult Contribute

The "Hype Cycle"



The "Hype Cycle"



Technology Overlap & Overtake



Technology Overlap & Overtake



Innovation Cycles



Innovation in Plastic Surgery

- Not limited to academic practice
- Many "non-academic" innovators
- Aesthetic treatments ideal for private practice
- Most ASAPS inovators are not "academic"



Ways to Get Started

- What do I do well?
- What don't I do well?
- What is an unmet need?
- What is the competition doing?
- What are my patient's asking for?
- Mega-trends vs micro-trends

Time & Resources

Industry Site Assessment

- Your clinical volume
- Past industry-sponsored studies
- Clinical staff & experience
- Methods for patient recruitment
- Equipment available
- Space available
- IRB

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Time Commitment

- Your time commitment
- Staff training
 - Protocols
 - Documentation
- Staff time obligations
 - Consents
 - Follow up
 - Regulatory issues
- Workflow redesign



Partnerships & Relationships

Innovation Partnerships

- Academic centers
 - Identify collaborator
 - Statistical and analytic support
 - Resident support
- Colleagues
 - Plastic surgeons
 - Other specialties
- Do not need to be local
- <u>Define</u> roles and responsibilities <u>early</u>

Project Assistants

- Undergraduate students
- Medical students
- Residents & fellows
- Nurses & physician assistants

Check background

Industry Partners

- Build relationships
- Use the product
- Discuss ideas
- Look for improvements
- Ask for resources

Proceed with caution

Avoid Pitfalls

- Disclosures
- Legal agreements
- Conflict of interest
- Intellectual property
- Confidentiality agreements

Maintain your ethics

Innovation & Research: IRBs, HIPPA, Informed Consent

Is Innovation Considered Research?

- Fine line between trying something new and conducting human research
- Research is:
 - Testing of drugs, devices, or products
 - Data from surveys, interviews, observation
 - Medical records
 - Bodily materials, such as cells, blood, tissues, when linked to specific individuals
- May need IRB

Role of IRB

- Protect rights & welfare of research patients
- Monitor between patient and physician
- Can suspend or terminate research
- Help researcher
 - Decrease risk
 - Improve study design



Do I Need IRB Approval for

- Chart reviews?
- Pulling data from my database?
- Studies I think are minimal risk?

YES



Avoid the IRB Pitfalls

- Play by the rules
 - Ask for guidance from IRB
 - Review every submission & revision yourself
- If you don't
 - Not get published
 - Be sanctioned
 - Shut down research



Multicenter Trials & Local IRBs

Expect

- Paperwork revisions
- Duplication of efforts
- Inconsistencies in recommendations
- Therefore, be
 - Proactive
 - Patient
 - Prepared for long timeline

Data Safety Monitoring Boards

- Purpose: Subject safety
- Used by industry and NIH sponsored studies
- Increasingly required for investigator initiated studies



Waiving Requirement for Informed Consent

- Research involves no more than minimal risk
- Waiver will not adversely affect the rights or welfare of the subjects
- Research could not be practicably carried out without the waiver
- Subjects will be provided with pertinent information after participation

Informed Consent

- Provide summary page
- 6th to 8th grade reading level
- Short sentences and paragraphs
- Use of Question & Answer format (FAQs)
- Increase font size, use bold, italics, color
- Use of bullet points
- Cite major risks, append others
- Use of tables for risks
- Use graphics
- Don't overestimate benefits or, underestimate risks

HIPPA

- Maintain study subject confidentiality
- Requires well thought out plan to gather data
- Review HIPPA guidelines
- Document all researchers HIPPA training



Medical Records & Database Research

- If the intent is to collect data to answer a question that may develop or contribute to general knowledge, the project is probably research
- <u>Rule of Thumb</u>: If the intent is to publish the data or present it at a professional conference, the activities probably constitute research

Preparatory to Research

- Activities that can be performed without HIPAA authorization:
 - The development of research questions
 - The determination of study feasibility (available number and eligibility of potential study participants)
 - The development of inclusion and exclusion criteria
 - The determination of eligibility for study participation of individual potential subjects
- Preparatory Research Certifications may need be filed with institution Privacy Officer

Databases

- Use of database information can constitute human subjects research
- Databases created for clinical purposes (even if they may be used at some point to answer a research question) do not require IRB review but must be registered with HIPAA Privacy Officer
- Databases created for research require IRB review & registration with HIPAA Privacy Officer

What's Coming Next?

- Clinical trial registration
 - Government
 - Publishers
- Trial standardization
 CONSORT Statement





Avoiding Pitfalls

- Have a hypothesis
- Do the literature search
- Try a pilot study
- Determine sufficient sample size
- Measurable outcomes
- Overestimate time and resources needed
- Proper documentation and informed consent
- Watch for conflicts of interest

Getting Started

Know the Background

- Literature search
 - Was this already done?
 - What knowledge is missing?
 - Is the data current and applicable?
- Who is the competition?
- Ask to see industry (internal) data
- Talk with industry researches & scientific team

Design the Project

- Topic/research question
- Hypotheses
- Patient population
- Study design
- Data collection/instruments
- Analysis
- Funding sources
- Dissemination of study findings

Useful Tools

- Patient database
- Validated survey & assessment instruments

 Wrinkle reduction scale
- Standardized outcomes tools
 - Breast-Q
 - Face-Q
- Standardized imaging & analysis
- Statistical support
 - Underpowered studies
 - Objective comparisons

Assessment Scales





Rated Numeric Kinetic Line Scale Scores for Facial Wrinkles Secondary to Hyperkinetic Function

Score	Description			
0	No wrinkles			
1	Wrinkles not present at rest, fine lines with facial expression			
2	Wrinkles not present at rest, deep lines with facial expression			
3	Fine wrinkles present at rest, deeper with facial expression			
4	Deep wrinkles at rest, deep furrows with facial expression			
	AFPS 2004			

Patient Reported Outcomes Tools

BREAST-Q and FACE-Q

FAQ



Home Domain

e Domains Publications

Our Team Contact

Scoring



The BREAST-Q is designed to provide clinicians and researchers with the ability to tailor their own version of the questionnaire to suit their needs. It is separated into 5 separate modules for augmentation, reduction (or mastopexy), breast-conserving surgery, mastectomy and post-mastectomy reconstruction. Each module is then divided into multiple scales that can be used independently.

Get the BREAST-Q → Download User's Manual



Measuring Quality of Life in Cosmetic and Reconstructive Breast Surgery: A Systematic Review of Patient-Reported Outcomes Instruments

Andrea L. Pusic, M.D., M.H.S. Constance M. Chen, M.D., M.P.H.

Stefan Cano, Ph.D. Anne Klassen, Ph.D. Colleen McCarthy, M.D. E. Dale Collins, M.D. Peter G. Cordeiro, M.D.

New York, N.Y.; London, United Kingdom; Vancouver, British Columbia, Canada; and Lebanon, N.H. Background: Patient-reported outcomes in cosmetic and reconstructive breast surgery are increasingly important for clinical research endeavors. Traditional surgical outcomes, centered on morbidity and mortality, remain important but are no longer sufficient on their own. Quality of life has become a crucial research topic augmenting traditional concerns focused on complications and survival. Given this, reliable and valid patient questionnaires are essential for aesthetic and reconstructive breast surgeons.

Methods: The authors performed a systematic literature review to identify patient-reported outcome measures developed and validated for use in cosmetic and reconstructive breast surgery patients. Qualifying instruments were assessed for adherence to international guidelines for health outcomes instrument development and validation.



Proven Performance

Used world-wide in clinical trialS with thousands of patients and translated into 13 different languages, it is uniquely sensitive to subtle differences in patient outcomes and highly responsive to clinical change in prospective trials.



Reliable Metrics

Developed using state of the art psychometric methods with input from over 2000 patients in Canada and the US, the BREAST-Q has been validated in over 15,000 patients and proven to be highly reliable, valid and responsive.



Customizable

A unique modular design and independently structured scales reduces the burden on patients to only answer questions that are relevant to the outcome of interest. This translates into higher patient response rates. Most scales can be completed by patients in just a few minutes. Measuring Outcomes That Matter to Face-Lift Patients: Development and Validation of FACE-Q Appearance Appraisal Scales and Adverse Effects Checklist for the Lower Face and Neck

Anne F. Klassen, D.Phil. Stefan J. Cano, Ph.D. Amie M. Scott, M.P.H. Andrea L. Pusic, M.D., M.H.S.

Hamilton, Ontario, Canada; Plymouth, United Kingdom; and New York, N.Y. **Background:** The FACE-Q is a new patient-reported outcome instrument to evaluate a range of outcomes for patients undergoing any type of facial cosmetic operation, minimally invasive cosmetic procedure, or facial injectable. This article describes the development and validation of FACE-Q scales relevant to face-lift patients.

Methods: The FACE-Q was developed by following international guidelines for patient-reported outcome instrument development. For outcomes following a

Is this Product or Device Approved? Know the FDA

501K Clearance

- FDA does not "approve" medical devices
- FDA "clears" them for sale
- FDA clearance does NOT imply level of efficacy
- A device may be cleared for a different use
 - RF <u>fat reduction</u> devices are <u>cleared for tissue warming</u>
- Starts with Premarket Notification to FDA
 - FDA determines if similar to device in 1 of 3 classes
 - Class I: Exempt due to minimal risk (tongue depressor)
 - Class II: Some risk
 - Class III: Support or sustain human life

"Off-Label" Use of FDA Cleared Device

- May use cleared device "off-label" to treat
- May NOT use for research unless IRB approved
- Is this device approved?

F	U.S. Food and Drug Administration Protecting and Promoting <i>Your</i> Health							
н	lome	Food	Drugs	Medical Devices	Radiation-Emitting Products	Vaccines, Blood & Biologics	Anima	
Pro o F	 Premarket Approval (PMA) FDA Home Medical Devices Databases Premarket approval (PMA) is the FDA process of scientific and regulatory review to evaluate the safety and effectiveness of Class III medical devices. Class III devices are those that support or sustain human life, are of substantial importance in preventing impairment of human health, or which present a potential, unreasonable risk of illness or injury. Learn more 							
	Se	arch Da	atabase			Help 🕃 Download Files		

Pharmaceutical Process



Tissue & Cell Therapies

- FDA regulates HTCP (Human cells & tissue products)
- Excludes "autologous cells recovered & implanted during the same surgical procedure"
- No premarket approval if tissue:
 - Minimally manipulated
 - Homologous use
 - Not combined with another article

Controversial: Proceed with Caution

Working with Industry: The Pitfalls

Negative Press

More government & public oversight

Senate Launches Investigation of Medtronic Spine Fusion Device

June 22, 2011



By JOHN FAUBER, Milwaukee Journal Sentinel/MedPage Today

Association with "bad" product

Spine Experts Repudiate Medtronic Studies

The New York Times

Ghostwriting by Industry

Report Urges More Curbs on Medical Ghostwriting

By NATASHA SINGER Published: June 24, 2010

The New York Times

Physician Payment Sunshine Act

		Home Abou	t CMS Newsro	om Center FAQs A	Archive 🔒 Share (? Help 😞 Email 🖨 Print	
CMS.gov	Learn about <u>your healthcare options</u>						
Centers for Medicare & M	Centers for Medicare & Medicaid Services						
Medicare Medicaid/CHIP	Medicare-Medicaid Coordination	Private Insurance	Innovation Center	Regulations & Guidance	Research, Statist Data & System	tics, Outreach & Education	
Home > Regulations and Guidance > O	Home > Regulations and Guidance > Open Payments > Open Payments						
Open Payments	Open Payments Open Payments						
Open Payments	Open Payments						
About Open Payments Creating Public Transparency of Industry-Physician Financial Relationships							
How Open Payments Works The Official Website for Open Payments (Physician Payments Sunshine Act)							
Participation in Open Payments	Open Payments creates greater transparency around the financial relationships of manufacturers, physicians, and						
Applicable Manufacturers	Applicable Manufacturers The program requires that the following information is reported annually to CMS:						
Applicable GPOs • Applicable manufacturers of covered drugs, devices, biologicals, and medical supplies to report payments or							
thysicians other transfers of value they make to physicians and teaching hospitals to CMS.							
Teaching Hospitals	 Applicable manufacturers and <u>applicable group purchasing organizations (GPOs</u>) to report to CMS certain ownership or investment interests held by physicians or their immediate family members. 						
Data Collection Details	Applicable GPOs to report to CMS payments or other transfers of value made to physician owners or investors if						
Program Registration they held ownership or an investment interest at any point during the reporting year.							

Intellectual Independence

- Institutional guidelines
 - Preserve independence & control
- Identify common goals with industry
 - Win-win situation
 - Funding and resources for your research
 - Favorable results with a product
 - Identify contraindications/flaws with products
- Conflict of interest
- Don't be a "Hired gun"
- Bias towards positive results
 - Study design
 - Result reporting

Intellectual Property

- Institutional guidelines
 - Protect your and institutions IP
- Document everything
 - Signed & dates notebook
 - Archive emails
 - Unopened certified letters
 - Nondisclosure agreements
 - Patent issues
- Have these discussions <u>early</u> in the process

Funding for your Innovation

Funding Sources: Industry

- More complex
- More restrictions
- Perception of bias



- May provide products or device
- May provide statistical & analytic support

Need established relationship and track record

Funding Sources: Professional Organizations

- Formal grant process
- Consider grant writing workshop
- Partner with established researcher





Funding Sources: Institutional

- Hospital grants
- Academic center grants
 - Include residents
 - Need faculty member
- Start-up and pilot-study grants
- Institution may benefit
 - More external grants
 - Public relations

Other Funding Sources

- Philanthropy organizations
- Service organizations
- Grateful individuals & patients



Presenting, Publishing and Disseminating your Innovation

Disseminating Innovation

- Public education & relations
- Paper presentations
- Trade publications
- Journal publications



Public Education & Relations





Paper Presentations

- Hospital Conferences
- Local & Regional Societies

 Consider non-plastic surgery organizations
- National societies
 - More formal applications
 - Competitive
 - Long lead time
 - Industry exposure



Trade Publications

- Less science, more trends and opinions
- Industry exposure
- Patient PR tool



Professional Journal Publications

- More science, less opinion
- Best industry exposure
- Need to plan <u>before</u> staring the project
- Time intensive if doing it alone
- Consider partnerships



The Components

- Abstract
- Introduction
- Methods
- Results
- Tables and Photos
- Discussion
- References

Authorship

- Explicit assigning responsibility & credit
 - Conception
 - Design
 - Execution
 - Analysis & interpretation
- NOT a right to inventorship or copyright
- Be able to explain & defend the study
- <u>Define upfront with industry & other partners</u>

Embracing Innovation: The Process of Research & Publication in Practice

Karol A Gutowski, MD, FACS



Course Information & Objectives

Monday, April 28 4:30pm – 6:30pm

716 From Hot Topics to a Hot Practice – How Innovation Can Drive a Thriving Practice 2 CME credits — Discounted pre-registration fee: \$140 On-site fee: \$190 Joe Gryskiewicz, MD, Karol Gutowski, MD and Brian Kinney, MD Level: Basic/Comprehensive Organization: Panel Who is allowed to attend Surgeons/Spouse/Physician's Assistants/Registered Nurses/Office Personnel/Exhibitors Course allowed to be recorded: Yes Any additional AV requirements beyond basic set up (basic includes 1 screen, LCD projector, microphone, laser pointer): No

3-5 goals or objectives for the course:

- Develop expertise in surveying the tech environment and identifying ideas for development
- Creating a successful business plan, dealing with investors and managing money wisely
- Navigating the FDA and establishing preclinical designs
- Evaluating scientific success and business success , what works, what doesn't
- Establishing relationships with companies, working as a team and maintaining independent credibility
- How to evaluate and compare competing products (toxins, energy devices, etc.)
- Developing clinical expertise with new products, best practices
- Differences and challenges in practice setting type (Private Practice, Academic, Group Employed)
- Presenting & publishing
- Marketing your innovative practice
- Assess scientific success and business success, deciphering what works and what does not