

Intellectual Property and Commercialization

Office of Technology Management

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Director, Licensing & New
Venture Development



Technology Transfer: What is it?

It's all about getting from HERE.....



....to HERE



Intellectual Property!

- Process of transferring UTHealth discoveries from the lab/clinic to the private sector for commercial development
- Link between research and commercialization
- Licensing is primary vehicle in academia

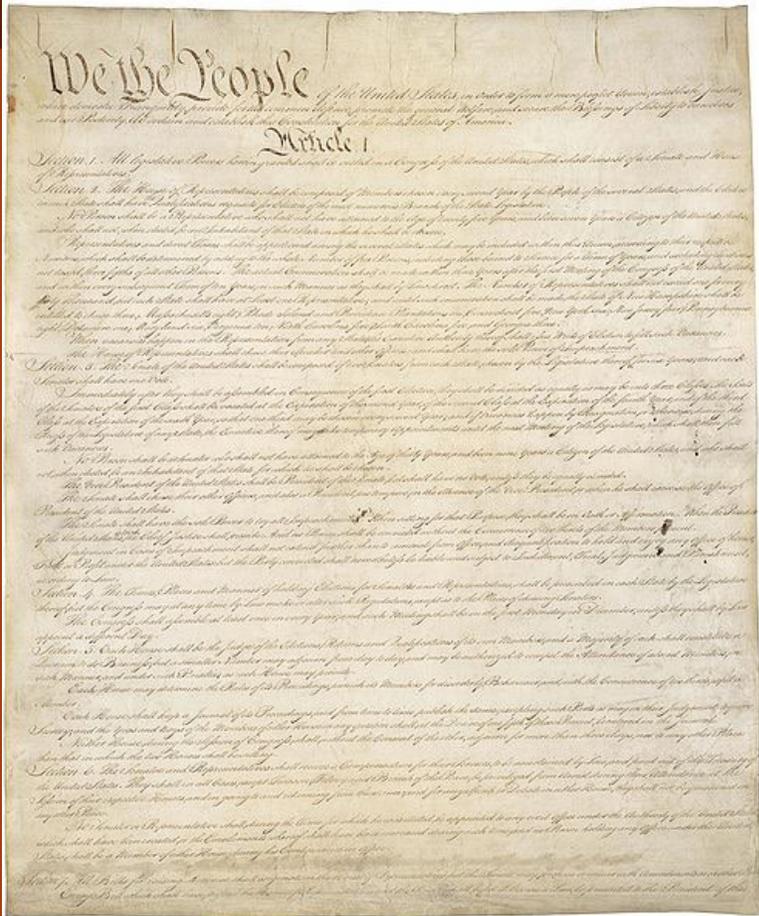
What is Intellectual Property (IP)?



A product of the mind that has commercial value

- **Patent** (plants, utility, design)
- **Copyright** (music, graphics, written matter, software)
- **Trademarks** (name, sound, logo)
- **Trade secrets** (customer list, formula, know-how)
- **Software** (may be included in patents and copyrights)
- **Tangible Research Property** (biological materials, prototypes, databases, devices, equipment)

What is a Patent?



U.S. Constitution: Article I: Section 8,
Clause 8:

- The Congress shall have power ... To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

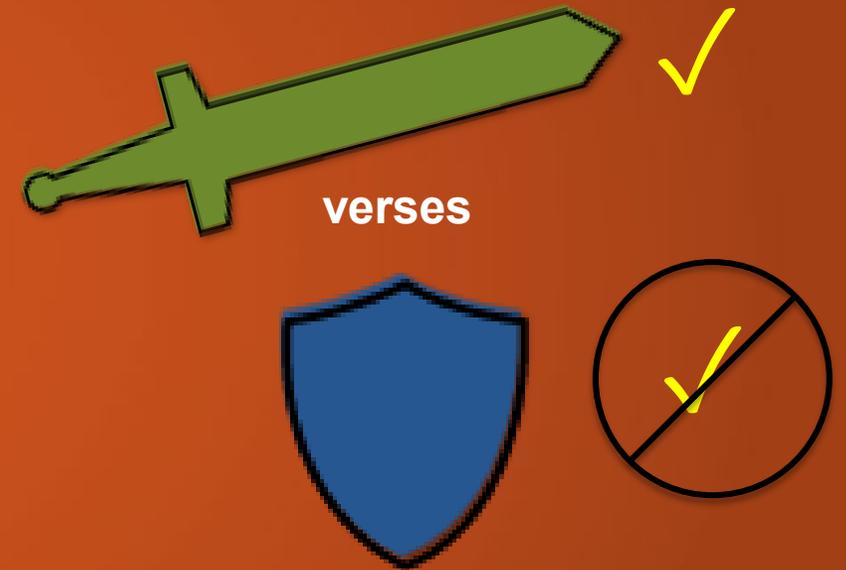
- ...patent law seeks to foster and reward invention... to promote disclosure of inventions... to stimulate further invention... and to permit free use of items in the public domain.

U.S. Supreme Ct. (1979)

What does a Patent do?

the right to exclude others from “making, using, offering for sale, or selling the invention throughout the U.S. or importing the invention into the U.S.” for a period of 20 years from the date of filing the patent application.

(35 U.S.C. 154 (1994))



Copyright

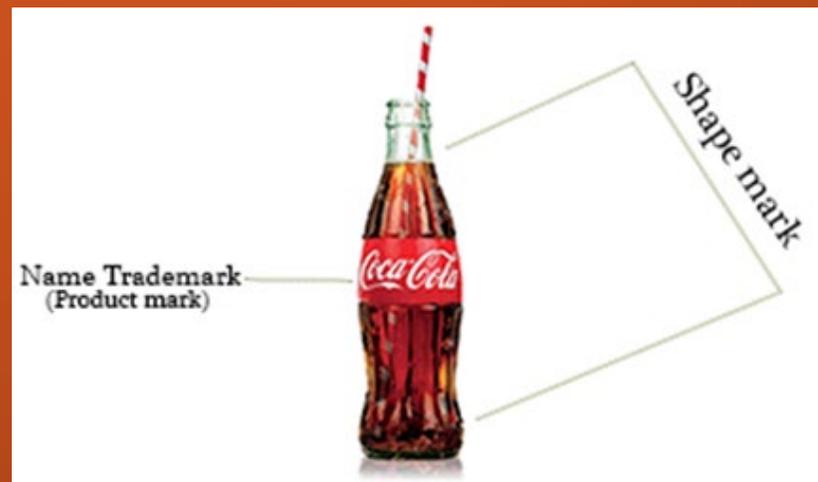
The exclusive right, granted by law, to the creator of a work to make, print, publish, perform/record and otherwise to control the use of a literary, dramatic, musical, artistic, or other work.

May include software. Cost is minimal.

Trademark

“Words, names, symbol, device, slogan, packaging design or combination of these that serves to identify and distinguish one specific product from others. Includes sound, color combinations, or smell.”

Can be registered. Cost can vary



Intellectual Property Protection

- **Patent** - 20 years from filing of application
- **Copyright** - Lifetime of creator plus 50 years
 - Happy Birthday!
- **Trademark** - 20 years, extendable
- **Trade Secret** - Forever, if careful

Each protection strategy provides the owner with the ability to exclude others from using the technology unless licensed, for a specified time period.

Who owns IP?

The Board of Regents of the University of Texas System owns the IP when it is:

- created within an employee's scope of employment; or
- created on UT System time, or with use of UT System facilities/resources; or
- Resulting from research supported by Federal Funds or 3rd party sponsorship or university gift.

What is a Invention?



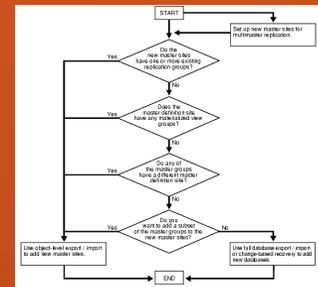
- An invention is a solution to a technical problem
- Inventions are important, but not everything important is an invention.
- An invention starts with an idea, but must be more than an idea
 - Conception and reduction to practice

Patentable Inventions?

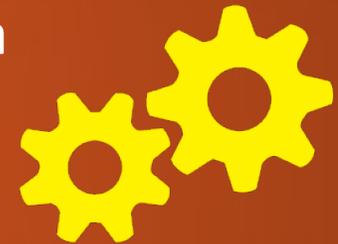
- Some inventions are patentable and some are not.
 - Judicial exceptions: abstract idea, law of nature or natural phenomenon, humans
- In the U.S., a patentable invention must be claimed as either a

- machine
- a composition of matter
- Method or a process

2. A method of identifying a vulnerable atherosclerotic plaque in a living vessel comprising the steps of:
detecting a region along the luminal wall having a temperature that is higher than that of an adjacent region;
and
locating the vulnerable plaque based upon the higher temperature of the detected region.

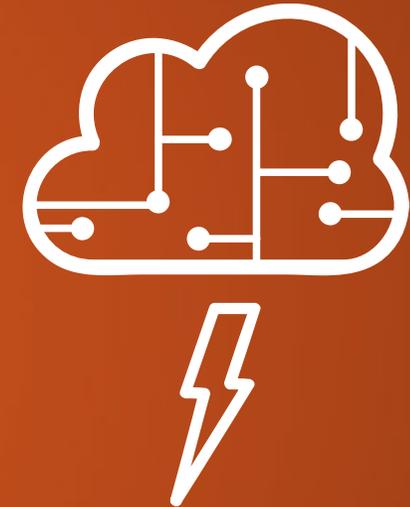


- a manufacture
- **Must be new, useful, and non-obvious.**



Can I patent this?

- | | |
|---|----------|
| • Perpetual motion machine | No |
| • Naturally-occurring culture of microorganisms | No |
| • Enriched or pure culture of microorganisms | Yes |
| • Human Gene | No |
| • Word-processing application stored on a disk | Yes |
| • Song stored on a disk | No |
| • Genetically-engineered mouse | Yes |
| • Genetically-engineered human | No |
| • A new use for aspirin | Yes? |
| • Medical or surgical procedure | Yes, but |
| • Method of doing business | Maybe? |
| • Diagnostic assay | Maybe? |
| • Algorithm | Maybe? |





US006293874B1

(12) **United States Patent**
Armstrong

(10) **Patent No.:** **US 6,293,874 B1**
(45) **Date of Patent:** **Sep. 25, 2001**

(54) **USER-OPERATED AMUSEMENT APPARATUS FOR KICKING THE USER'S BUTTOCKS**

Primary Examiner—Joe H. Cheng
Assistant Examiner—Kim T. Nguyen
(74) *Attorney, Agent, or Firm*—Pitts & Brittan, P.C.

(76) **Inventor:** **Joe W. Armstrong**, 306 Kingston St., Lenoir, TN (US) 37771-2408

(57) **ABSTRACT**

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

An amusement apparatus including a user-operated and controlled apparatus for self-infliction of repetitive blows to the user's buttocks by a plurality of elongated arms bearing flexible extensions that rotate under the user's control. The apparatus includes a platform foldable at a mid-section, having first post and second upstanding posts detachably mounted thereon. The first post is provided with a crank positioned at a height thereon which requires the user to bend forward toward the first post while grasping the crank with both hands, to prominently present his buttocks toward the second post. The second post is provided with a plurality of rotating arms detachably mounted thereon, with a central axis of the rotating arms positioned at a height generally level with the user's buttocks. The elongated arms are propelled by the user's movement of the crank, which is operatively connected by a drive train to the central axis of the rotating arms. As the user rotates the crank, the user's buttocks are paddled by flexible shoes located on each outboard end of the elongated arms to provide amusement to the user and viewers of the paddling. The amusement apparatus is foldable into a self-contained package for storage or shipping.

(21) **Appl. No.:** **09/477,175**

(22) **Filed:** **Jan. 4, 2000**

(51) **Int. Cl.7** **A63H 37/00**

(52) **U.S. Cl.** **472/51; 472/55**

(58) **Field of Search** **472/51, 55, 137; 482/51, 72, 148**

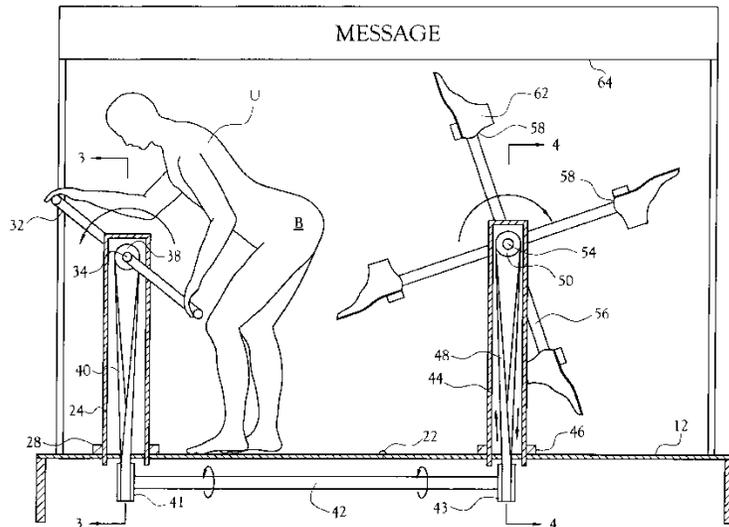
(56) **References Cited**

U.S. PATENT DOCUMENTS

654,611	7/1900	De Moulin .	
920,837	5/1909	De Moulin .	
953,411	3/1910	De Moulin .	
966,935	8/1910	Mamaux .	
976,851	11/1910	De Moulin .	
1,175,372	3/1916	Newcomb .	
4,457,100	* 7/1984	Nightingale .	446/333
5,785,601	* 7/1998	Kubesheski et al. .	472/135

* cited by examiner

14 Claims, 7 Drawing Sheets



Just because you can?

(54) **USER-OPERATED AMUSEMENT APPARATUS FOR KICKING THE USER'S BUTTOCKS**

Who is an Inventor?

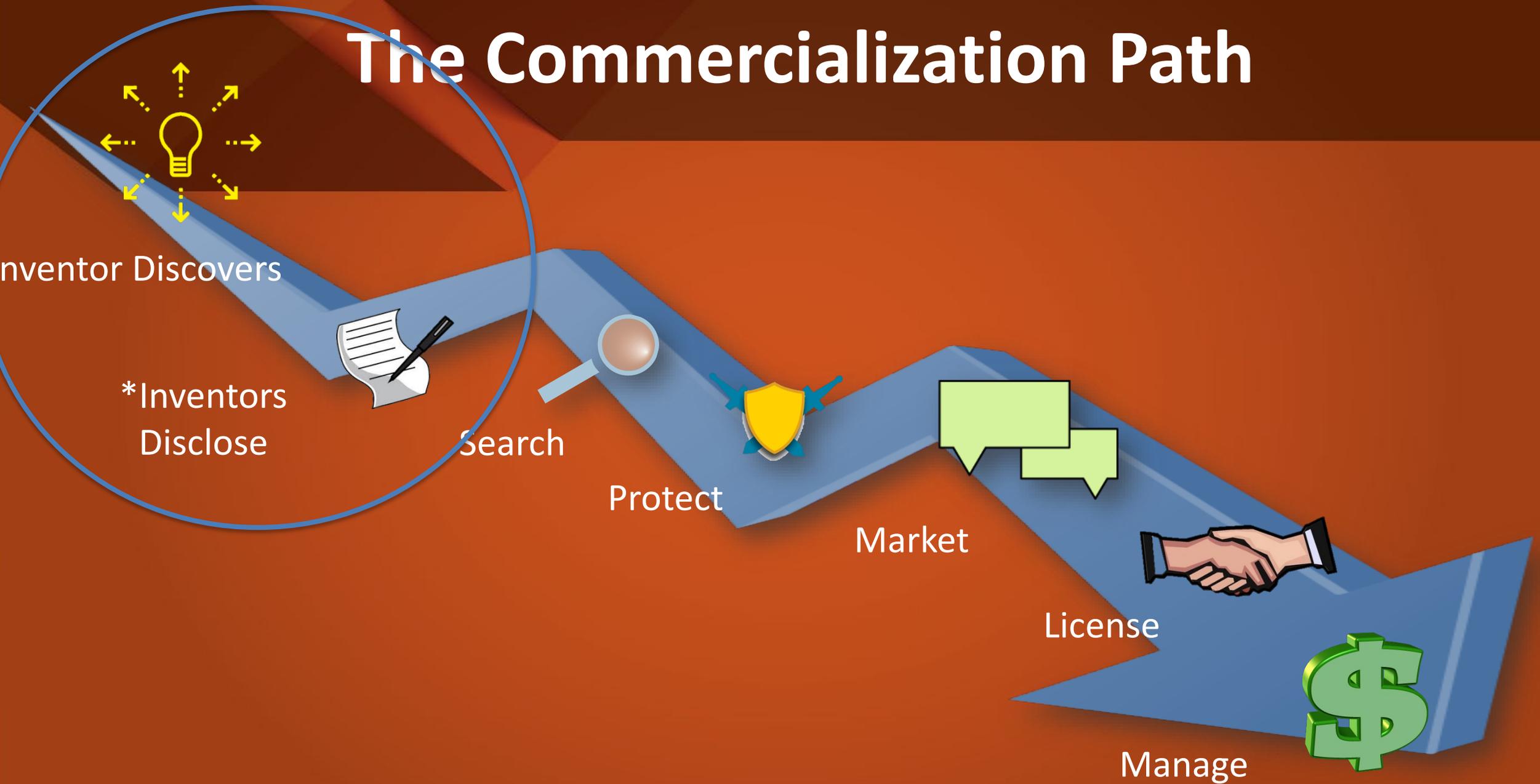
- A person who conceives, produces or contrives something previously unknown by the use of ingenuity or imagination
- Co-inventors if each contribute to the inventive process, even if unequally
- Not necessarily co-inventor if only following directions
 - **A co-author is not necessarily an inventor**
 - **Inventorship is dependent on the specific claims in an application**
 - Co-Inventors have equal rights (not as a percentage of contribution)
- A matter of **LAW**

Why do I care about IP?

- IP is a way to translate your research to the marketplace—OTM is your link to commercialization, i.e. through existing or new businesses, investors (\$\$), etc.
- Federal Grant Agencies require IP to be reported not only on your grant report, but through our office (iEdison)
 - Bayh-Dole Act 1980's
 - Created environment for technology transfer from universities
 - Government reporting requirements for inventions made using federal funds



The Commercialization Path



I think I have an invention....what do I do next?

The screenshot shows the website for the Office of Technology Management at UTHealth Houston. At the top, there is a navigation bar with links for About, Careers, News, Events, A-Z, Webmail, Inside the University, and a Give button. Below this is a secondary navigation bar with dropdown menus for Schools, Students, Patients, Research, and Give, along with a search bar. The main content area features the title "Office of Technology Management" and a sub-navigation bar with links for "For Inventors", "UTHealth Houston Impact", "Startups", "Meet the Team", "Resources", "News and Events", and "FAQs". A paragraph of text describes the office's history and achievements. Below this is another paragraph about working with researchers. A "Shortcuts" section contains two buttons: "Submit a Disclosure" and "Technologies Available to License". At the bottom, there are three columns with icons and titles: "Have a New Invention?" (lightbulb icon), "Think Your Technology Needs a Startup?" (hourglass icon), and "Need to Talk to OTM?" (people icon). Each column contains a brief description of the service.

#UTHealth Houston About Careers News Events A-Z Webmail Inside the University

Schools ▾ Students ▾ Patients ▾ Research ▾ Give ▾ Search UTHealth Houston

Office of Technology Management

Office of Technology Management

For Inventors UTHealth Houston Impact Startups Meet the Team Resources News and Events FAQs

Over the past 40 years, well more than 1,000 UTHealth Houston researchers have brought amazing technologies to OTM for assistance with the intellectual property protection and commercialization processes available. Some of the most creative and successful innovations include products that have had a tremendous impact on many different aspects of improving and saving lives. These efforts have resulted in the signing of over 600 license or option agreements, and the formation of more than 66 portfolio companies, and the generation of more than \$143 million in revenue to the university.

OTM looks forward to working with UTHealth Houston researchers on new inventions and creations, as well as with entrepreneurs and companies to turn such technologies into the next generation of impactful products.

Shortcuts:

Have a New Invention?
Learn more about the disclosure and commercialization process at UTHealth Houston and find guidelines and resources for university employees.

Think Your Technology Needs a Startup?
Explore how the startup company process works at UTHealth Houston for university innovations—OTM offers guidance, resources, and

Need to Talk to OTM?
Find contact information as well as get to know the OTM team dedicated to supporting the innovation and commercialization process at UTHealth Houston.

OTM Website:
uth.tmc.edu/otm

Call OTM:
713-500-3369

For Inventors

Explore this Section

For Inventors
UTHealth Houston Impact
Startups
Meet the Team
Resources
News and Events
FAQs

Related Links

[Available Technologies](#)

Contact Us

Office of Technology Management

[Directions to OTM](#)

7000 Fannin Street, Suite 1400
Houston, Texas 77030
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Fax: 713-500-0331
Email: otm@uth.tmc.edu



The Office of Technology Management (OTM) serves the University's faculty, students, and staff in the technology transfer and commercialization processes of new discoveries.

This section provides information, instructions, forms, and additional resources to help you work with OTM in technology commercialization. In addition, you may find it helpful to review our General Process Guidelines listed below or visit our [Frequently Asked Questions \(FAQS\)](#) page, which provides answers to common questions about OTM and technology commercialization. You may also contact us to help answer any questions.

Forms, Policies, and Education

[Open All](#) / [Close All](#)

Forms and Instructions

Technology Report Forms

To be submitted via email

- [Technology Report Form: Patents](#)
- [Additional Creator Addendum Form - Patents](#)
- [Technology Report Form: Software](#)
- [Additional Creator Addendum Form-Software](#)
- [Technology Report Form: Copyright](#)
- [Additional Creator Addendum Form-Copyright](#)
- [Technology Report Form: Research Material](#)

4 types of disclosure forms to choose from depending on technology and/or protection pathway of interest

[Instructions for submitting a Report Form to OTM](#)

OTM Website:
uth.tmc.edu/otm

Call OTM:
713-500-3369

I think I have an invention...what do I do next?


UTHealth Houston
OFFICE OF TECHNOLOGY MANAGEMENT
TECHNOLOGY REPORT

For OTM use only

File #:
Submitted to:
Funding Agency:

1. TITLE OF TECHNOLOGY: _____

2. CREATOR(S) INFORMATION:
Please list the full name of all UTHealth employees or students and any non-UTHealth personnel who have contributed to the development of the technology by conceiving or elaborating on the idea, designing experiments, evaluating experimental results, contributing features while building a device or performing a method, or otherwise directly contributing to the technology beyond merely providing funds, work space, materials, or entirely directed labor. Joint appointment with any other university, a company, or governmental agency or the like must be noted below. **All fields in this section 2 for each Creator must be completely filled out** (Home address, Home Phone, and Personal email information will only be used by our office in event your work contact information changes). Please see Section 9 below for a broader definition of inventorship. **Please do NOT use ChatGPT or any other AI tool to fill out this form or in the creation of the technology—see more information in Section 6 below!**

Name: _____	Employer: <input type="checkbox"/> UTHealth <input type="checkbox"/> Other (Name): _____	
School: <input type="checkbox"/> Medical <input type="checkbox"/> Nursing <input type="checkbox"/> SBMI <input type="checkbox"/> Dental <input type="checkbox"/> SPH <input type="checkbox"/> GSBS <input type="checkbox"/> SBHS	% Time Employed by UTHealth _____ %	
Title: _____	% Time Employed by Other _____ %	
Department: _____	Other Appointment <input type="checkbox"/> None <input type="checkbox"/> Clayton <input type="checkbox"/> Other: _____	
Work Address: _____	Home Address: _____	
Work Phone: _____	Personal Phone: _____	Citizenship: _____
Work Email: _____	Personal Email: _____	
% Contribution: _____ %	Note: OTM should be informed of any changes to the above information	
Describe this individual's contribution: _____		

Name: _____	Employer: <input type="checkbox"/> UTHealth <input type="checkbox"/> Other (Name): _____	
School: <input type="checkbox"/> Medical <input type="checkbox"/> Nursing <input type="checkbox"/> SBMI <input type="checkbox"/> Dental <input type="checkbox"/> SPH <input type="checkbox"/> GSBS <input type="checkbox"/> SBHS	% Time Employed by UTHealth _____ %	
Title: _____	% Time Employed by Other _____ %	
Department: _____	Other Appointment <input type="checkbox"/> None <input type="checkbox"/> Clayton <input type="checkbox"/> Other: _____	
Work Address: _____	Home Address: _____	
Work Phone: _____	Personal Phone: _____	Citizenship: _____
Work Email: _____	Personal Email: _____	
% Contribution: _____ %	Note: OTM should be informed of any changes to the above information	
Describe this individual's contribution: _____		

Name: _____	Employer: <input type="checkbox"/> UTHealth <input type="checkbox"/> Other (Name): _____	
School: <input type="checkbox"/> Medical <input type="checkbox"/> Nursing <input type="checkbox"/> SBMI <input type="checkbox"/> Dental <input type="checkbox"/> SPH <input type="checkbox"/> GSBS <input type="checkbox"/> SBHS	% Time Employed by UTHealth _____ %	
Title: _____	% Time Employed by Other _____ %	
Department: _____	Other Appointment <input type="checkbox"/> None <input type="checkbox"/> Clayton <input type="checkbox"/> Other: _____	

CONFIDENTIAL Page 1 of 7

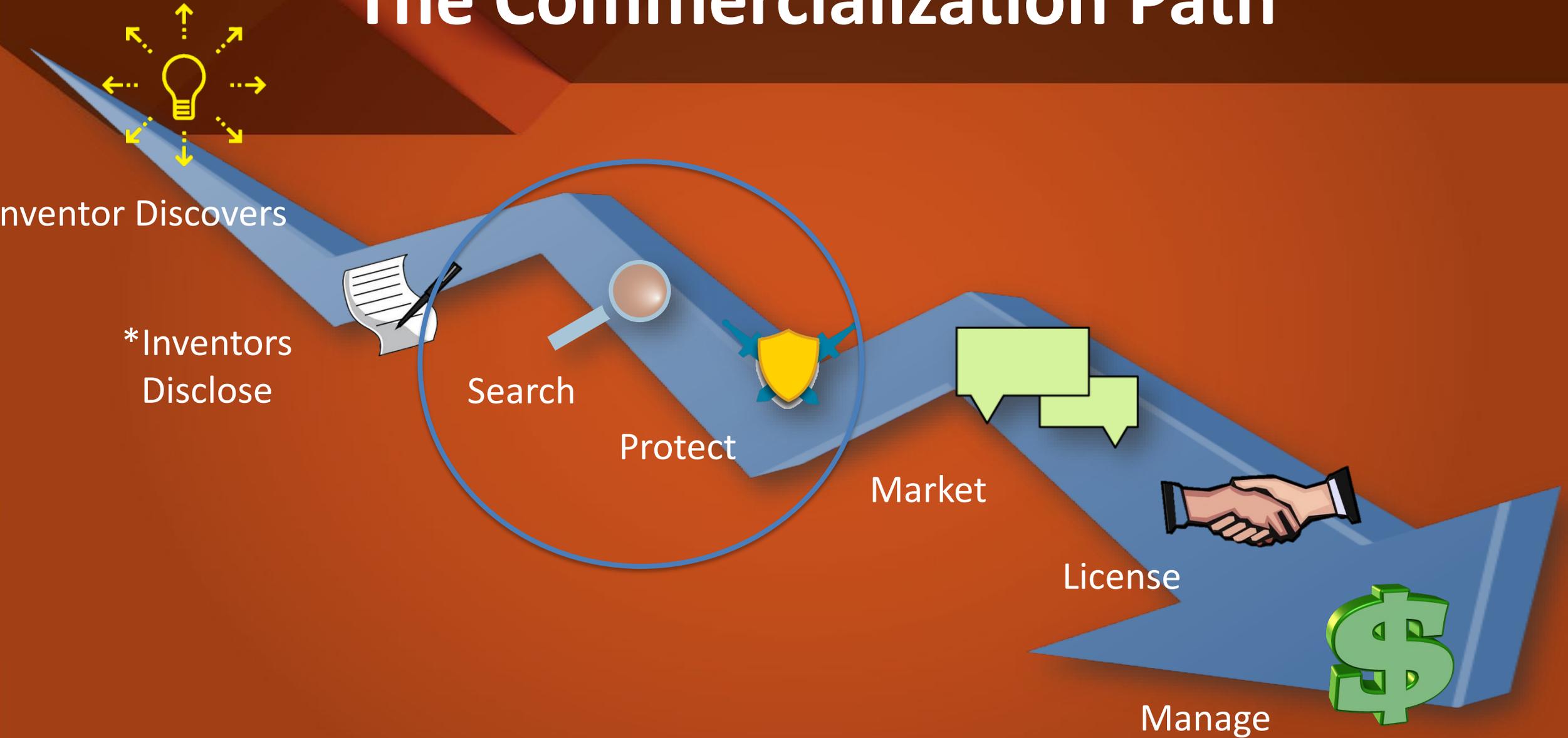
OTM Website:
uth.tmc.edu/otm

Call OTM:
713-500-3369

Sample report form (left), as well as a wealth of IP related information for inventors, can be found on OTM's website

Online Portal coming soon!!!

The Commercialization Path



Search & Assess the Technology

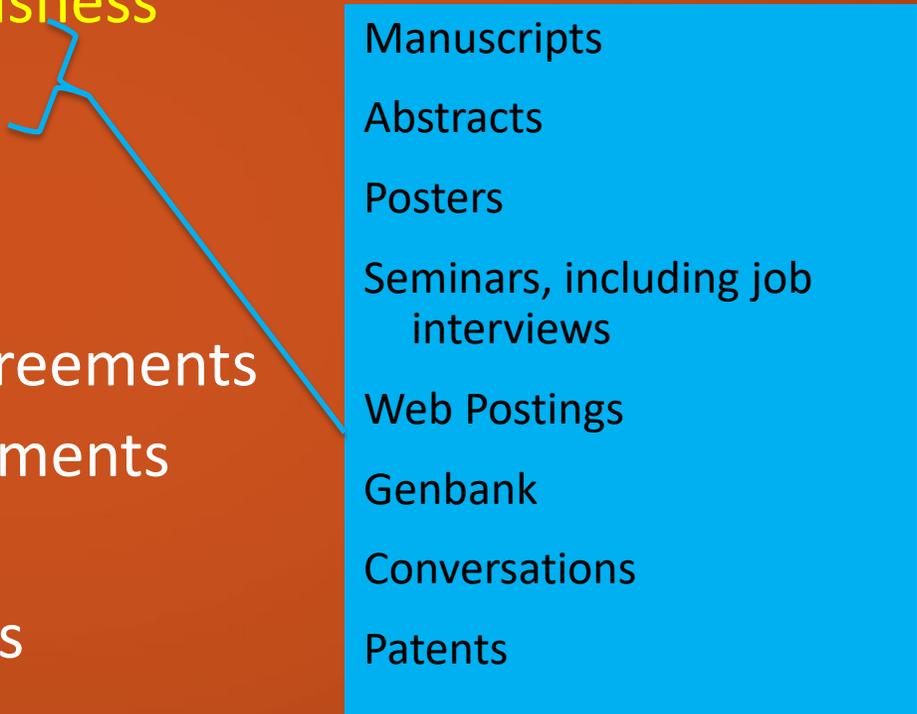
Qualitative assessment of potential product

- **The technology** should lead to a useful, commercially valuable product
- **Intellectual property protection**; technology should be adequately protected; other IP must not block the path to commercialization
- **Path-to-market**; clear business model/strategy for generating profit
- **Regulatory issues**
- **Commercial Partnership Opportunity**
- **Licensing: Big company vs. small company vs. start-up company**



What additional information do we need to know for IP Protection?

- Is there Novelty/Obviousness
- Public Disclosures?
- Funding Sources
- License Agreements
- Sponsored Research Agreements
- Material Transfer Agreements
- Software Agreements
- Clinical Trial Agreements
- Inventors' employment



Manuscripts
Abstracts
Posters
Seminars, including job interviews
Web Postings
Genbank
Conversations
Patents

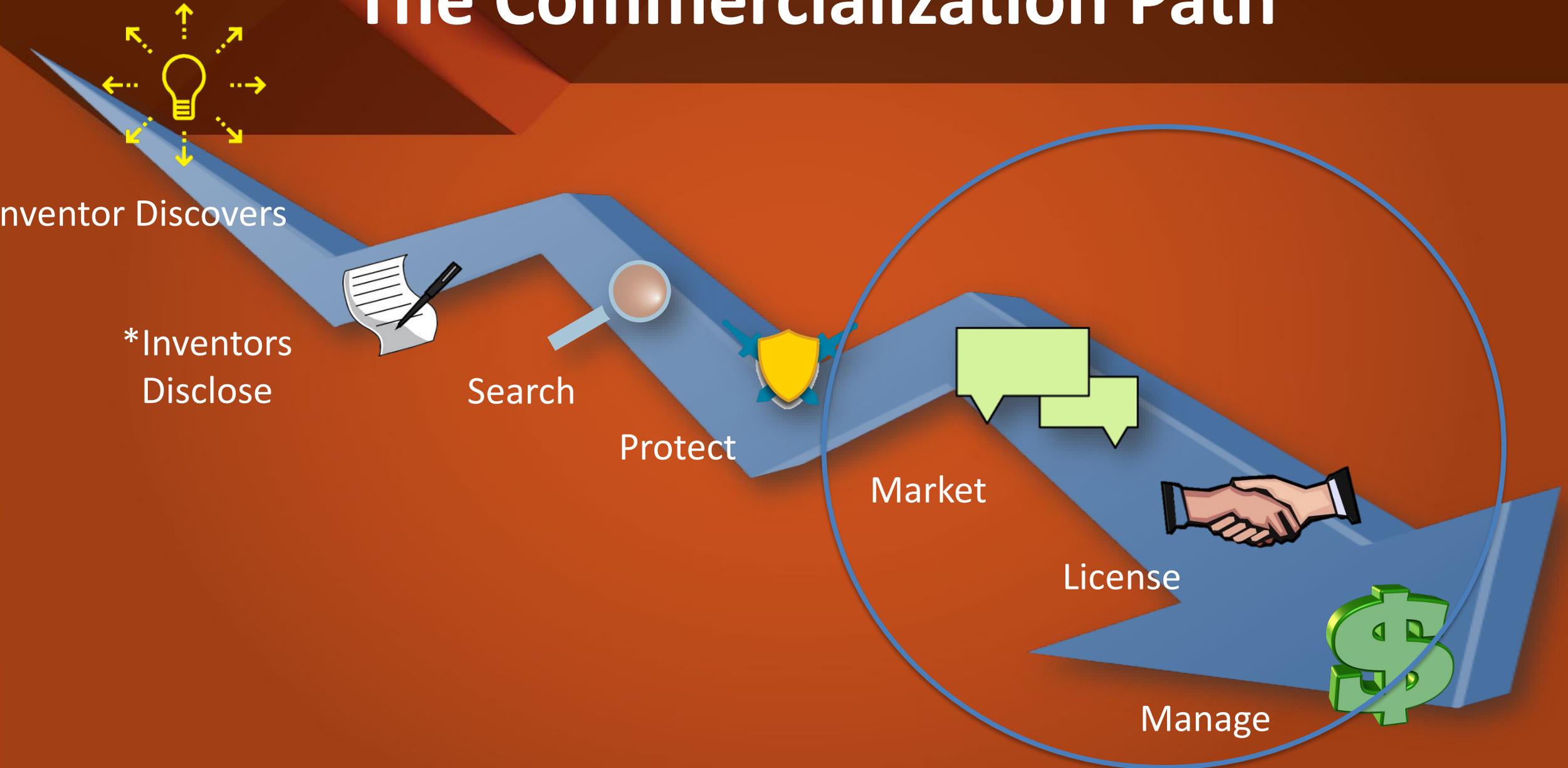
Why Assess? Why not just file?



Obtaining a patent is expensive!

- An average of **\$15,000+** in legal fees **just to file** a US patent application, **\$25,000** to issue
- An average of 3-5 years to prosecute a US patent
- An estimated **\$480,000** in legal fees to file and maintain US and standard foreign venues

The Commercialization Path



Commercialization

- Valuation
- Negotiation
- Execution of Agreements
- Agreement Management

What's the benefit to you?

At UTHealth, we distribute cash received from the licensing of your IP as follows:

- Creators 50%
- Patent fund/OTM 35%
- Your School 5%
- Your Department 5%
- Your Laboratory 5%



We Need Your Help!

- Talk to us **(as EARLY as possible)**
- Confidentiality—UT authorized signature needed on CDAs/NDAs
- **Documentation/Record Keeping**
- Assist with searching
 - Scientific Literature
 - Patents
 - Commercial potential
 - Licensee Identification
- Assist with patent prosecution
- Assist with licensing

MORE Information



otm@uth.tmc.edu



uth.tmc.edu/otm



[@UTHealth_OTM](https://twitter.com/UTHealth_OTM)



UTHealth Office of Technology
Management

OTM By The Numbers

\$5.3+ million Annual Gross Revenue (average)

\$142+ million Licensing Revenue (cumulative)

21+ New License/Option Agreements per Year (average)

640+ Total License/Option Agreements (cumulative)

2700+ Patents/Patent Applications (cumulative)

41 New US Patent Applications Filed Each Year (average)

300+ Products on the Market

Portfolio Companies (UTHealth)

- 66 portfolio companies (cumulative); 41 active
- More than \$1B in capital raised to date
- 6 companies IPO/acquired/other liquidity event, including Volcano, LifeCell
- More than >1300 jobs created in private and 3 public companies



Selected Startups



Contact Us: We are here to help YOU!

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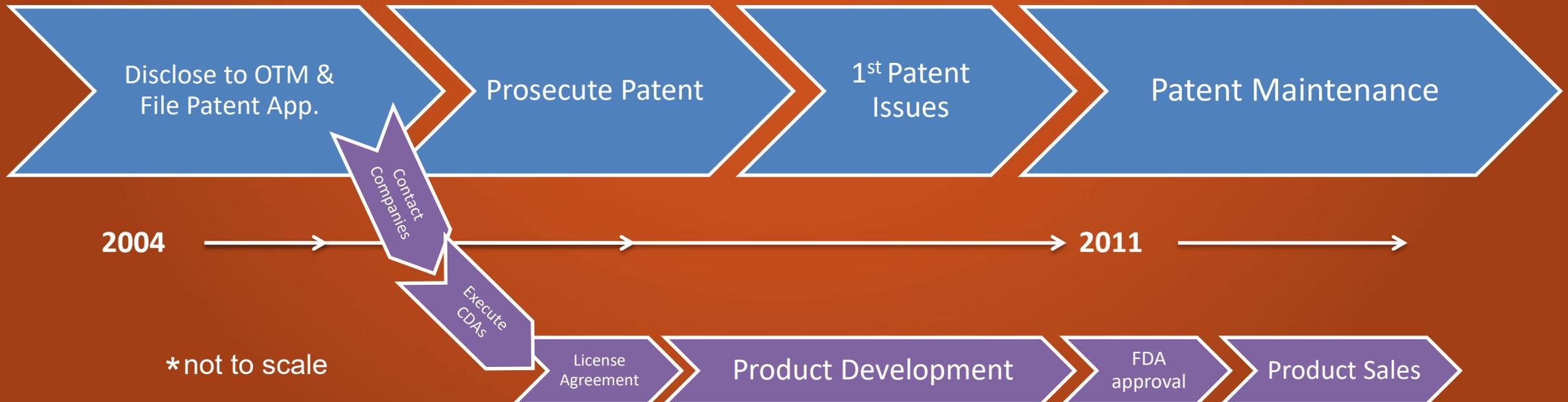
Device Example: Portable Fluid Warmer



- 2+ patents issued by the USPTO
- 1 startup company formed: EMIT Corporation
- FDA 510(k) clearance received in FY2011 to market the device as “HypothermX™ HX100”



Timeline*



Device Example: Portable Fluid Warmer



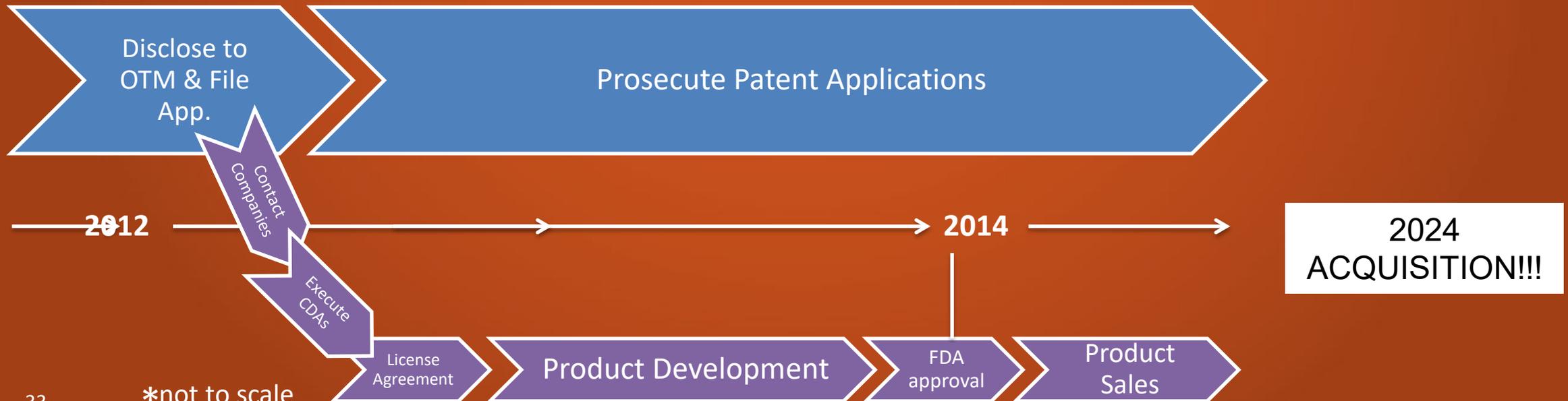
Various fluid warmer prototypes over the years, from research prototype to FDA approved product for sale

Software Example: Patient Dashboard



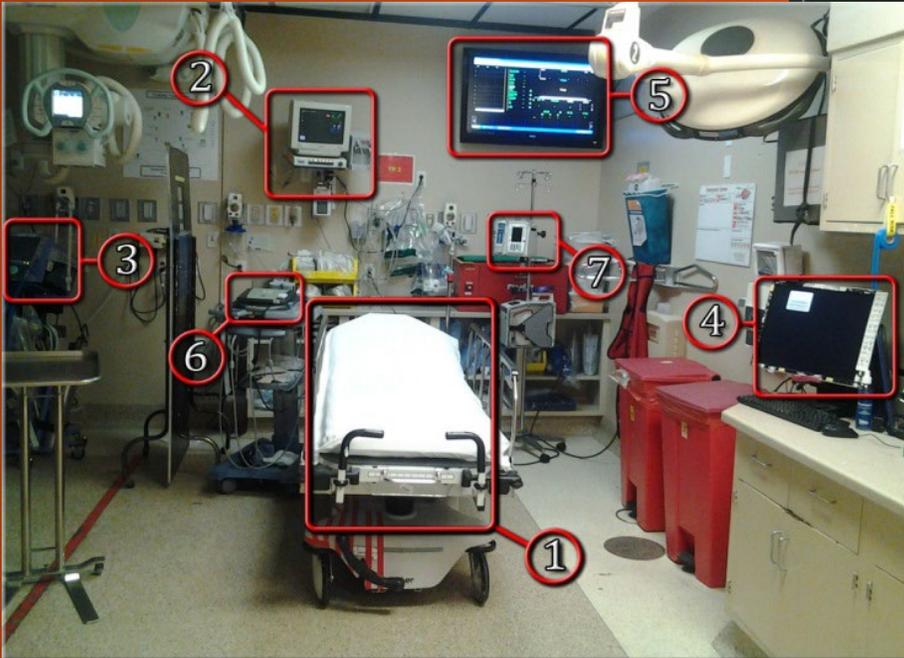
- 1 issued patent in the United States
- patents pending in the United States and abroad
- 1 startup company formed: Decisio Health
- FDA 510(k) clearance received in FY2014

Timeline*



Software Example : Patient Dashboard

Early prototype:



ED BAY #1 : **ONLINE**

V2.1.1+35 (4EC8013-DEV)

00:01:29
ROCURONIUM
00:01:03
INTUBATION
00:00:01
CHEST TUBE - L

00:04:23

RBC	FFP	PLT
3	6	1
00:00:12	00:00:13	00:00:05

 **HR: 123** 00:00:28
SBP: 100 00:00:28

 **GCS: 5** **E: 1** **V: 2** **M: 2**
00:00:44

FAST
POSITIVE

ABC+: 2
POSITIVE

CRYSTALLOID: 600CC

CONSULT NEUROSURGERY

CONSIDER ICP

00:01:05
INTUBATE

00:00:54
CALL BLOOD BANK (4-3640)

PATIENT: **XRAY0123** - M - 54

NURSE: **S., BINOD**

Software Example : Patient Dashboard

FDA approved
version:

BED 1: ONLINE (UNSTABLE-DIVAD1) 2013-12-09 11:26:13

Timeline
Morphine 4mg 00:00:14
Chest Tube - R 00:00:10
Intubation Prehosp

00:00:48

HR: 111 00:00:44
SBP: 100 00:00:44
TEMP: 97.3 00:00:44

RBC: 7 FFP: 7 PLT: 1
00:00:46 00:00:46 00:00:14

GCS: 3 PREHOSP
EYE: 1 VERBAL: 1 MOTOR: 1
CRYSTALLOID: 0cc
FAST 00:00:06
ABC+: 2
POSITIVE POSITIVE

Recommendations
CONSULT NEUROSURGERY 00:00:47 ELAPSED
CALL BLOOD BANK (4-3640)
INTUBATE DONE

PATIENT: XRAY0001 F/25 NURSE: JACKIE

- Severe Sepsis**
Activated @ 8/31 14:43
3 hr - 8/31 17:43
- Antibiotics
 - Blood Cultures
 - Initial Lactate
6 hr - 8/31 20:43
 - Repeat Lactate
- Septic Shock**
Activated @ 8/31 15:01
3 hr - 8/31 17:43
- Fluid Resuscitation
6 hr - 8/31 20:43
 - CV Ultrasound
 - CVO2
 - CVP: 7mm Hg
 - Fluid Challenge
 - Focused Phys Exam
 - Passive Leg Raise
 - Vasopressors

BURN 1: ONLINE v1.13 D2 8/31 18:17:08

VITALS 8/31 14:57
HR: 110 (105-123)
BP: 108 / 66 (80)
SpO₂: 95% CVP: 7mm Hg

HEME 8/31 13:26
14.1 14.8 160
45.3

RENAL/LYTES 8/31 13:26
143 102 16 Ca: 9.8
4.5 25 1.1 Mg: 1.6
PO₄: 2.6

BUNDLES
FOLEY Document Foley Care
HIT
RENAL
DVT
CENTRAL LINE
NUTRITION

HR: 5 hours 16 minutes @ 8/31 14:57

SBP: 5 hours 16 minutes @ 8/31 14:57

ENDOCRINE 8/31 13:26
Glucose: 91 (76-95)

TEMPERATURE 8/31 14:00
Tc: 102.3°F
Tm: 102.5°F @ 8/31 07:00

TEG 8/31 13:26
ACT: 113 α: 76
R: 0.4 MA: 64
K: 1.2 Lysis: 4.8

LACTIC ACID 8/31 13:26
8.2(7.3-9.2)

COAGS 8/31 13:26
PT: 14 INR: 0.9 PTT: 31

NUTRITION 8/31 14:00

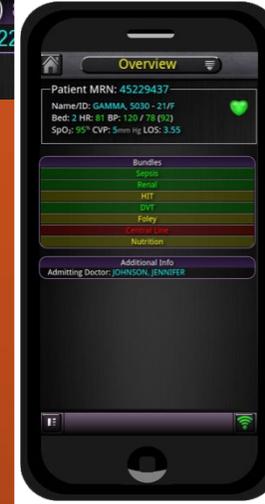
BLOOD GAS (ART)
7.31 | 40 | 290 | 22

PROMOTE
ADMITTING DR: BROWN, A.

PATIENT: XRAY, 8912 (60/F) MRN: 42302811



iPhone™,
Android™
Display



Android Tablet™, iPad™ Display

