

# TOBACCO SETTLEMENT REVENUE OVERSIGHT COMMITTEE

Co-Chaired by:

Senator Gabriel Ramos

Representative Elizabeth “Liz” Thomson



**Richard S. Larson, MD, PhD**

Executive Vice Chancellor

Vice Chancellor for Research



**UNM Health Sciences Center**  
plays a **critical role** in delivering  
**healthcare services, training** of  
**health professionals, and**  
**contributing**  
**to New Mexico's economy.**

Employs over **10,000** individuals

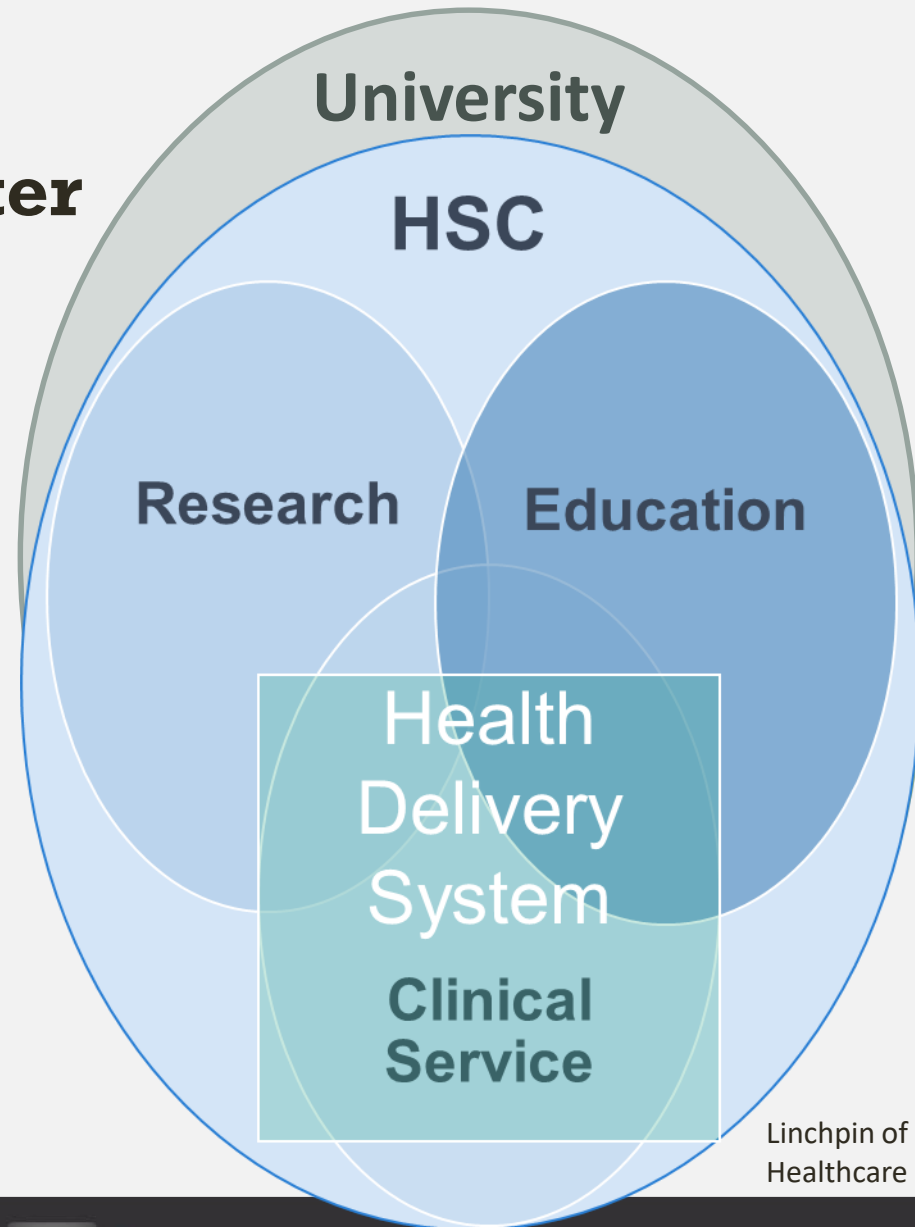
# UNM HSC: An Academic Health Center

Neither purely **academic institution**  
or **health care providers**

Compete in **health** and **marketplace**

Engage in **biomedical research**

Extensive **educational activities**



# UNM HSC: Critical Needs Programs for New Mexico



## Patient Care

Delivery of **comprehensive** and **unique** patient care

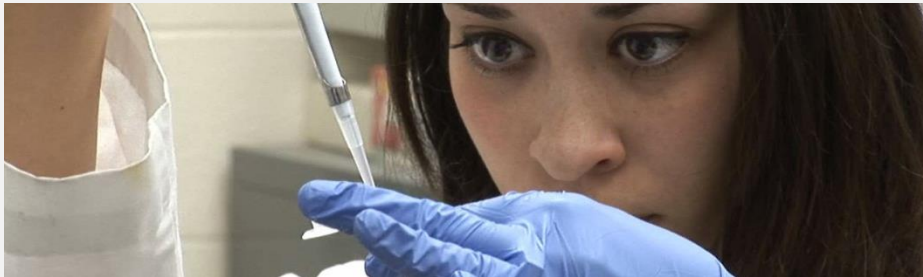
## Education

Growing the **next generation** of Health Care Professionals Workforce

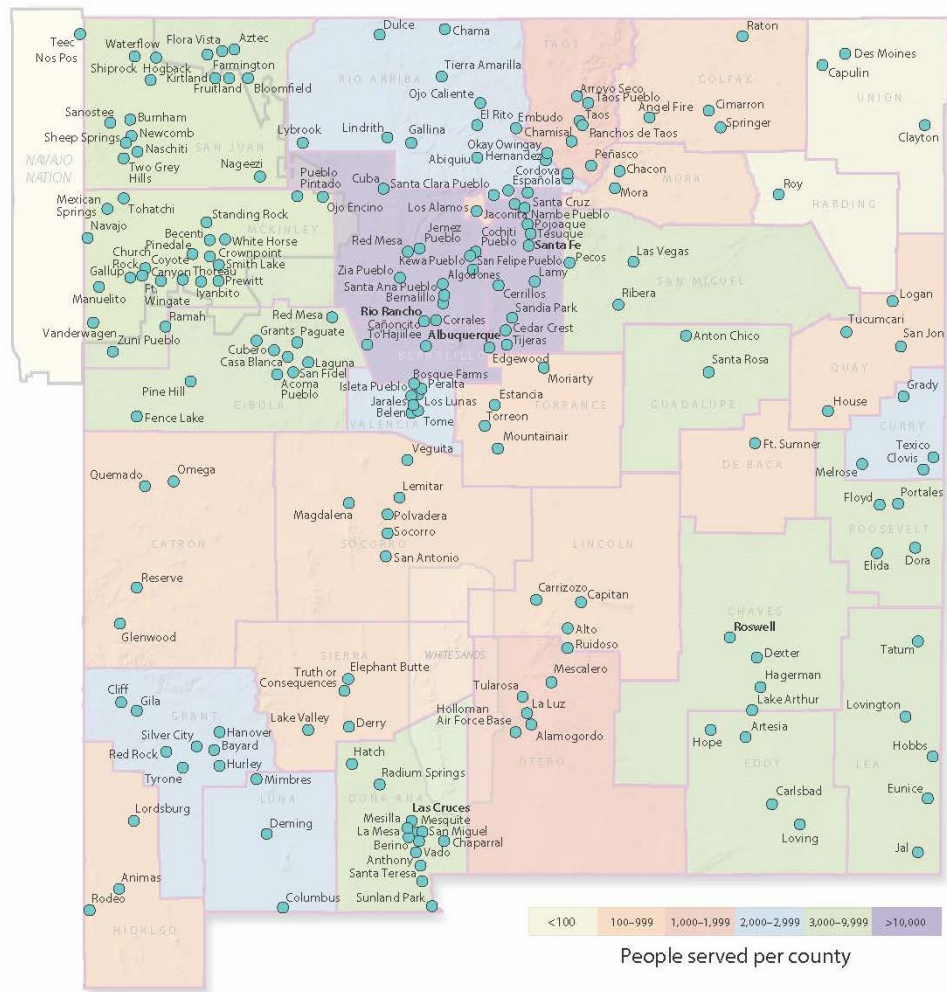


## Research

Creating new **knowledge** to increase the **quality of life** for New Mexicans



# Activities in New Mexico Counties



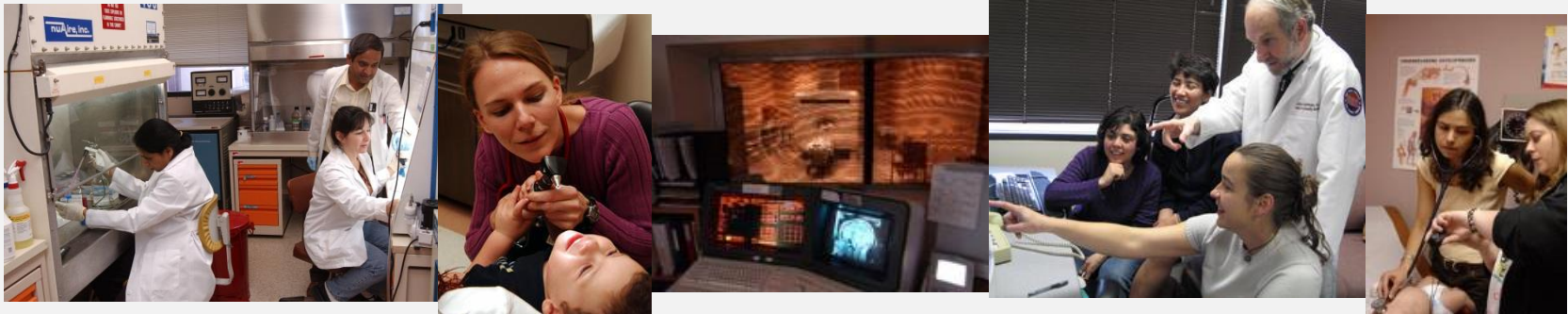
579 Activities in 246 Communities

Activities include:

- Education
- Patient care
- Community research
- Telehealth sites

# Tobacco Settlement Statute

- Supports **clinical care, education, and research** into tobacco related illnesses
- Support of **biomedical research** with tobacco settlement funds
- Funded **other needed** health-related programs



# Tobacco Pilot Funding



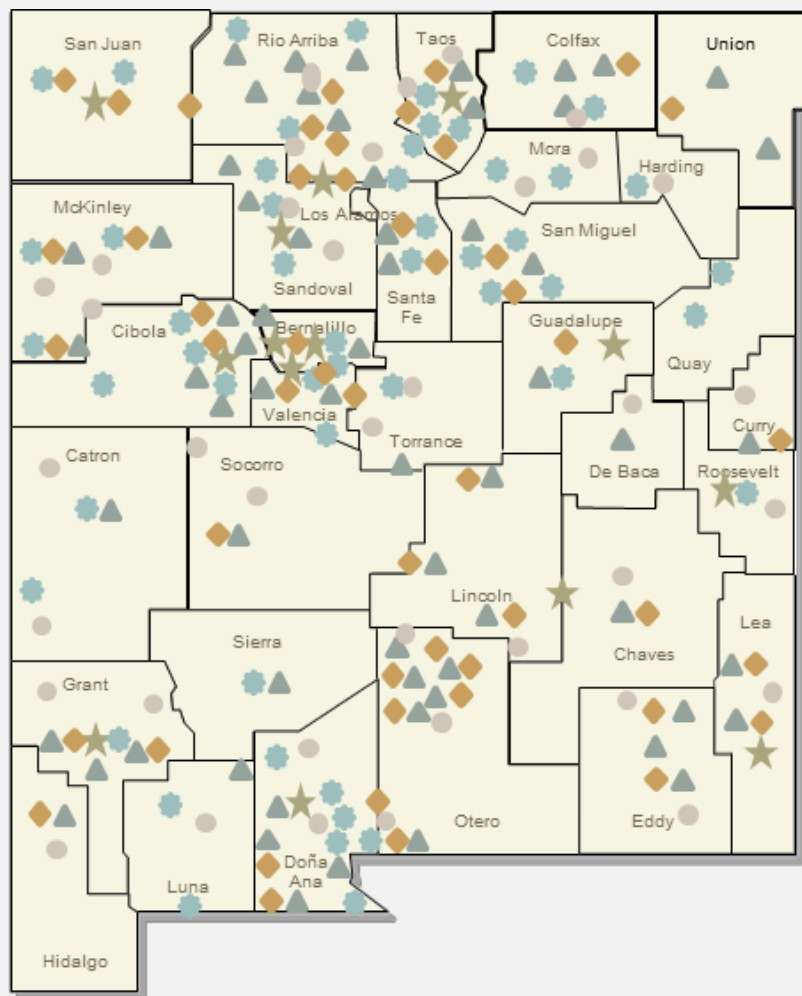
Surojit Paul, PhD



## *Effect of Prenatal Alcohol Exposure on Cerebral Stroke: Role of Tyrosine Phosphatase STEP*

- Exposure to alcohol and smoking in utero has been shown to disrupt neuro-developmental gene expression and lead to abnormal fetal development.
- Found that even mild alcohol consumption or smoking by pregnant females could result in long-lasting effects in the offspring throughout its lifetime and identified the antioxidant system in the offspring as an ideal drug target for interventions to mitigate these adverse consequences.

# Research in New Mexico Counties

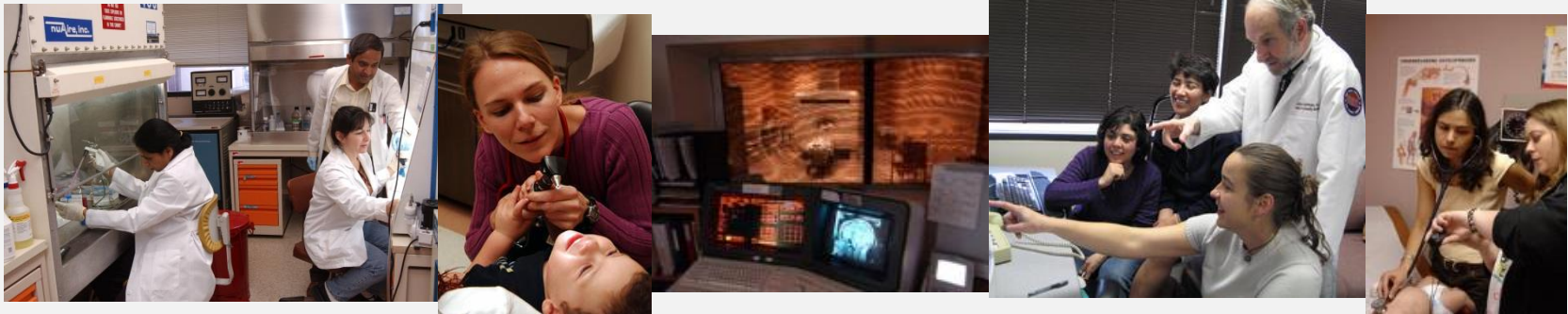


- Provides statewide support services for research
  - ★ Health Extension Rural Offices (HEROs)
  - ◆ Investigator-led community-based programs
- Provides access to other research programs
  - ▲ Project ECHO
  - ✿ Practice-based research network
- Establishing recruitment network
  - CHS/CHW Network



# Cigarette Tax vs. Tobacco Settlement

- Tobacco Settlement supports **tobacco-related research and clinical care** at the entire UNM HSC
- Cigarette Tax (0.83%) supports **clinical care, education, and research** at the UNM Cancer Center



# Tobacco Related Illnesses

## Cancer

- Lung Cancer
- Esophagus Cancer
- Laryngeal Cancer
- Kidney Cancer
- Cervical Cancer
- Colorectal Cancer
- Leukemia/Lymphoma

## Brain & Behavioral Illnesses

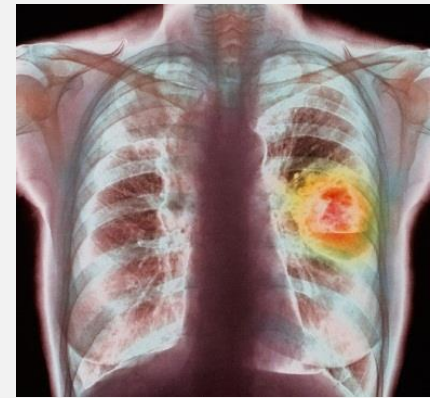
- Addiction
- Fertility in Women
- Impotence in Men
- SIDS
- Toxic Exposures

## Infectious Disease and Immunity

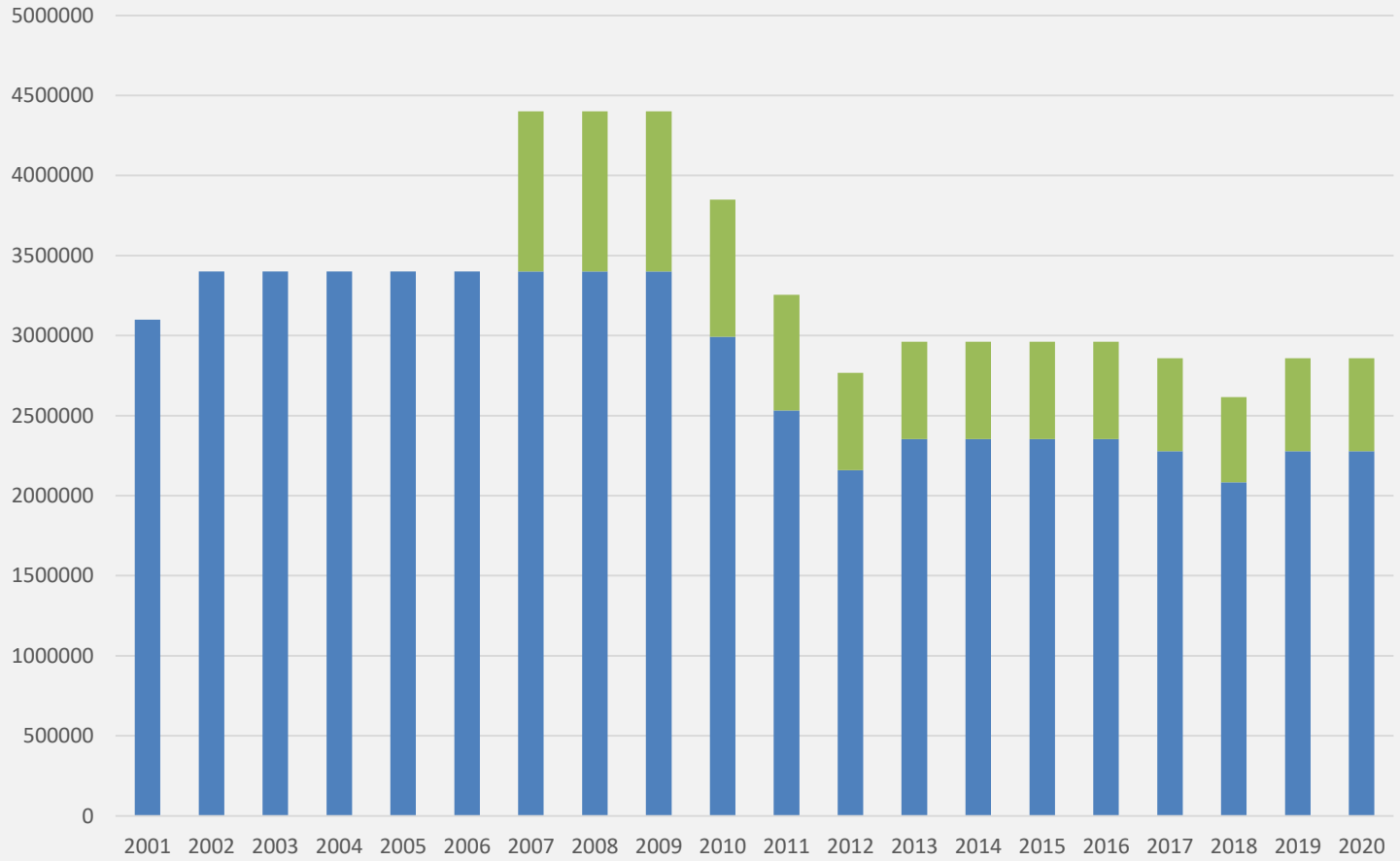
- Osteoporosis
- Delayed wound bleeding
- Palmoplantar pustulosis
- Psoriasis
- Increased incidence of back injury and broken bones

## Diabetes and Vascular Diseases

- Coronary Heart Disease
- High Cholesterol
- Stroke
- Diabetes
- Emphysema
- Asthma
- Atherosclerosis



# Changes Over the Last Decade



■ Core Programs      ■ I&G

# Programs Supported by Tobacco Settlement Funds

## Core Projects

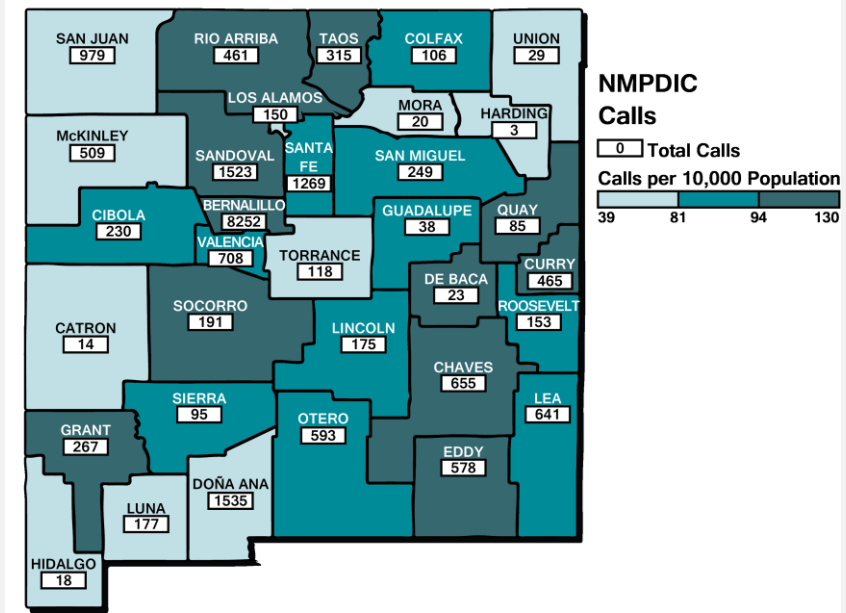
- NM Poison & Drug Information Center (FY21 Request: \$590,200)
- Pediatric Oncology Program (FY20 Request: \$250,000)
- *UNM HSC Biomedical Research (Genomics, Biocomputing & Environmental Health Research)* (FY20 Request: \$937,200)

## Instruction & General (I&G) Funds

- *Specialty Education Trauma* (FY20 Request: \$250,000)
- *Specialty Education Pediatrics* (FY20 Request: \$250,000)
- *Instruction and General Line Item (added in 2007)* (FY20 Request: \$581,500)

# NM Poison & Drug Information Center

NMPDIC Calls by County, FY19



## Benefit

- The *only poison center* in New Mexico
- *Improves New Mexicans' health* by reducing morbidity and mortality associated with poisoning and by encouraging proper use of medications
- *Reduces healthcare costs* by helping citizens identify when to safely be treated at home and by consulting with healthcare teams for hospitalized patients
- Reducing hospitalizations saved ~\$37M
- Receives more than 23,000 calls per year
- Provides professional education statewide

Percentage of Calls by Relationship to Patient



23,298 calls/year

# Pediatric Oncology Program



## Benefit

- The center of excellence for diagnosis & care of children with cancer
- The only provider of tertiary care for children with cancer in New Mexico
- Consults on young adults with pediatric cancers
- Over 450 active patients with 4,900 visits

## Use of Funds

- Provides support to patients and their families via counseling
- Faculty positions are supported as well



# History of I&G Funding from Tobacco Settlement Funds

- Began in 2007
- Legislature funded HSC I&G General Fund requests from TSF
- Supports trauma care, primary care, and faculty retention



With faculty compensation rates below the national average, the School of Medicine (SOM) is having difficulty retaining faculty physicians due to salary compaction. The SOM must be able to hire and retain quality faculty physicians as they are the key to educating our medical students, while simultaneously providing care to New Mexicans.

# Funds Committed to I&G Supplement

## Benefit

- Support additional faculty positions in pediatrics and trauma medicine
- Ensure that faculty members have sufficient time to continue teaching despite and ever-increasing clinical patient load



## Programs

- Specialty Education in Pediatrics
- Specialty Education in Trauma HSC
- I&G Support for Education and Retention



# UNM HSC Biomedical Research Genomics & Environmental Health

## Benefit

- Pilot funds
- “Core” support
- Accelerating the translation of basic research into clinical practice



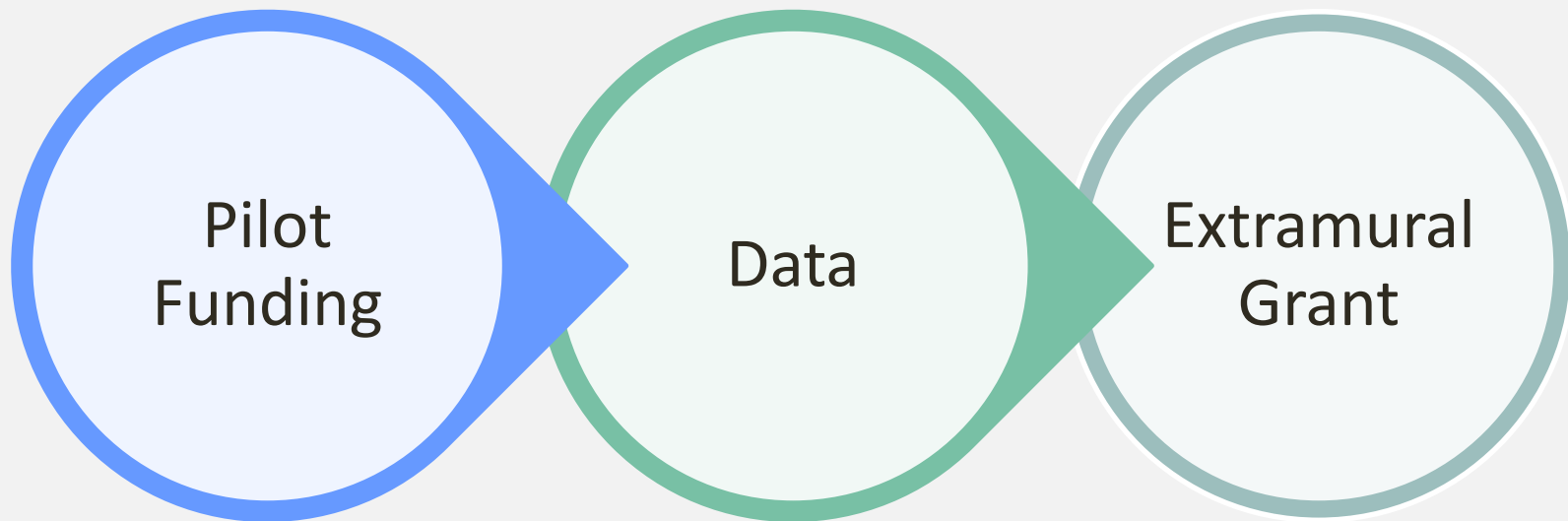
FY20 Amount: \$937,400

FY21 Request: \$937,400

(Now known as UNM Comprehensive Program for Clinical and Basic Research, and Prevention of Tobacco-Related Illnesses in New Mexico)

# Pilot Funding

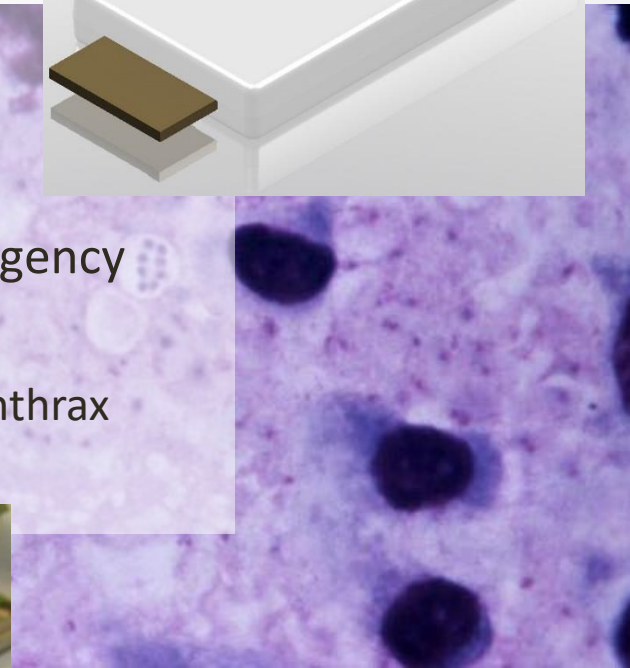
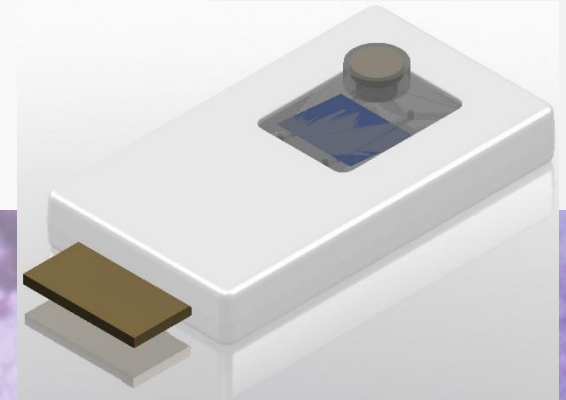
- Pilot funding is the primary mechanism for obtaining federal support



- Pilot funding returns \$8 – \$20 per \$1 invested.

# Example of Pilot Funding

- Idea
  - Can we develop a handheld device to rapidly diagnose disease?
- Required Investment
  - \$50K Pilot funds (2003)
  - Core facilities supported by Tobacco Settlement
- Result
  - Initial data obtained with Sandia National Laboratories
  - Grant application (\$1.3M for 8yr; supports 10 jobs/yr)
- Chief Scientist Award from the Defense Intelligence Agency
- Public-Private Partnership
  - Adapted for hepatitis B and C, HIV, sin nombre virus, anthrax
  - Potential to save tens of thousands of lives



# Tobacco Pilot Funding

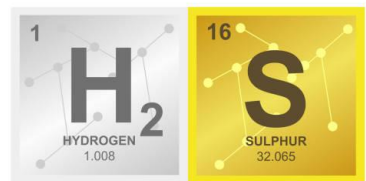
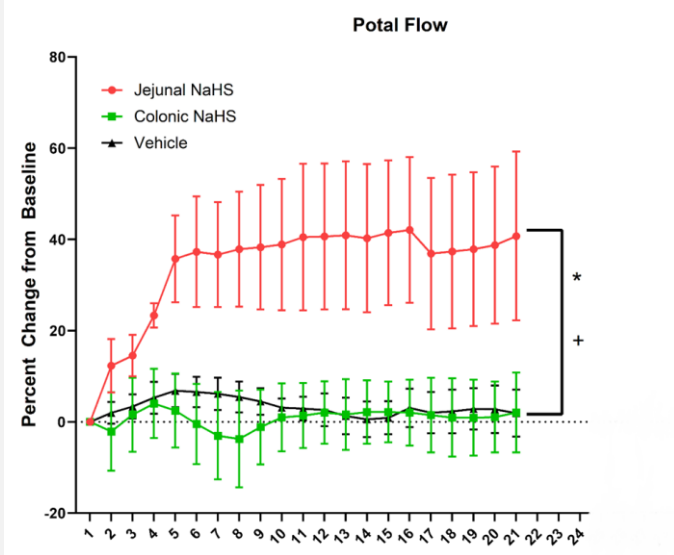


## *The effects of bacteria-derived hydrogen sulfide on the portal vascular system*



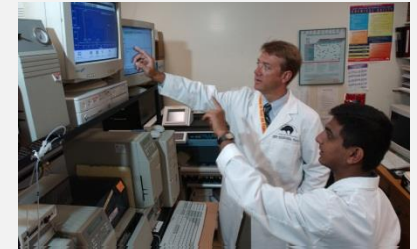
Nancy Kanagy, PhD

- Tobacco use is associated with overgrowth of harmful gut bacteria which produce the chemical hydrogen sulfide in the small intestine.
- Found that Hydrogen sulfide generated by gut bacteria is a new target for therapy to prevent or reverse liver disease.



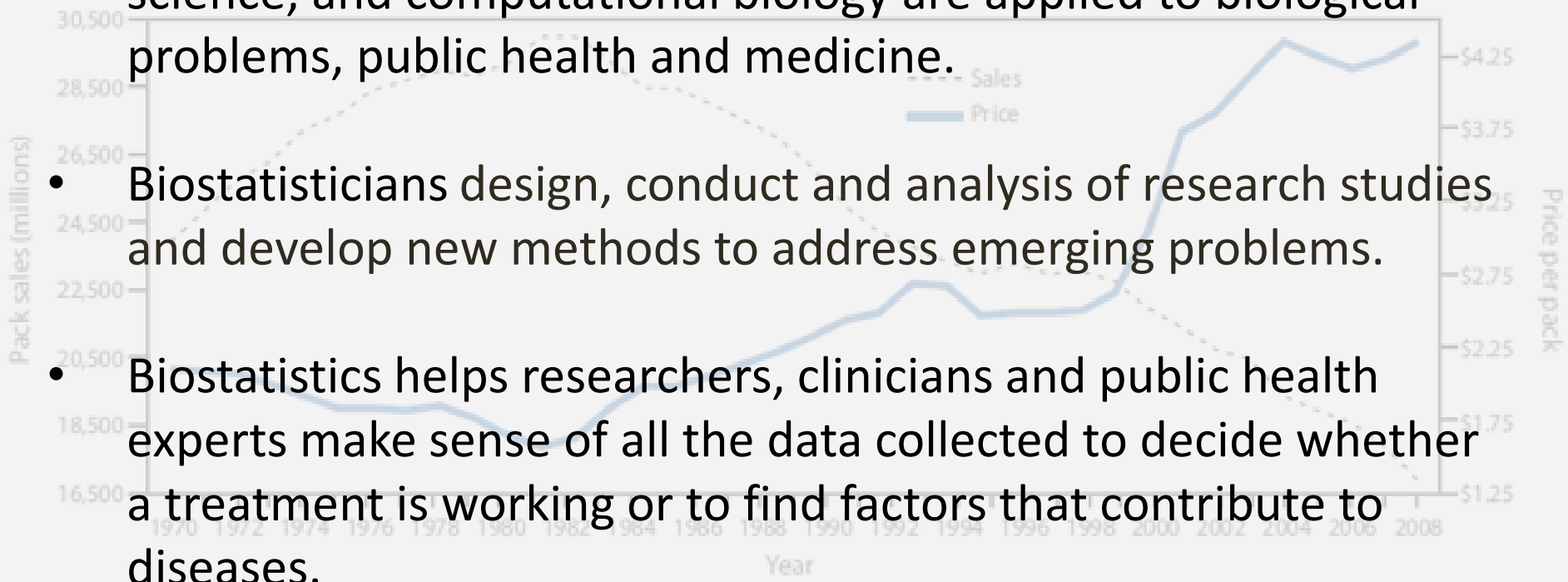
# Core Facilities

- Shared facilities that provide service to entire HSC community (genomics and biostatistics)
- Provide access to equipment that is otherwise unavailable
  - **Research that would otherwise be impossible**



# Core Facilities: Biostatistics

- Biostatistics is an exciting field where mathematics, computer science, and computational biology are applied to biological problems, public health and medicine.



- Biostatisticians design, conduct and analysis of research studies and develop new methods to address emerging problems.

- Biostatistics helps researchers, clinicians and public health experts make sense of all the data collected to decide whether a treatment is working or to find factors that contribute to diseases.

# Clinical and Intervention Trials

- Brings latest treatments and technologies to New Mexico
- **If trial not available, treatment not available in New Mexico**
- Each trial provides new treatment at no cost to patient
- Since 2001 Tobacco settlement funding has provided infrastructure support to 315 trials and 140 investigators

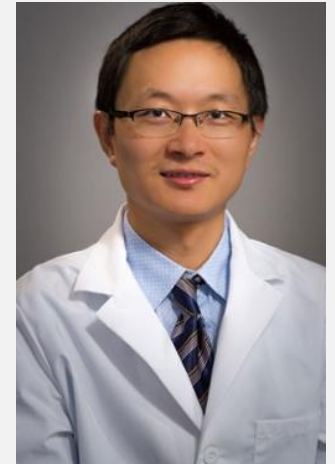
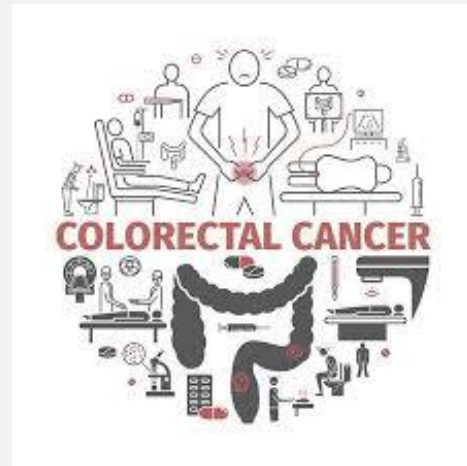
## Examples in Clinical Trials Center

- 55 studies involving diabetes
- 35 pediatric and adult pulmonary studies
- 20 studies involving cystic fibrosis
- 12 studies involving MS
- 15 studies involving pediatric and adult kidney disease
- And studies involving heart disease, eye disease due to diabetes, Autoimmune diseases, orthopedic surgeries, neonatal opioid withdrawal syndrome, pediatric obesity, children with cerebral palsy.



# Tobacco Pilot Funding

## *The role of hypoxia-inducible factor-3 $\alpha$ in epithelial mesenchymal transition and colorectal cancer metastasis*



Xiang Xue, PhD

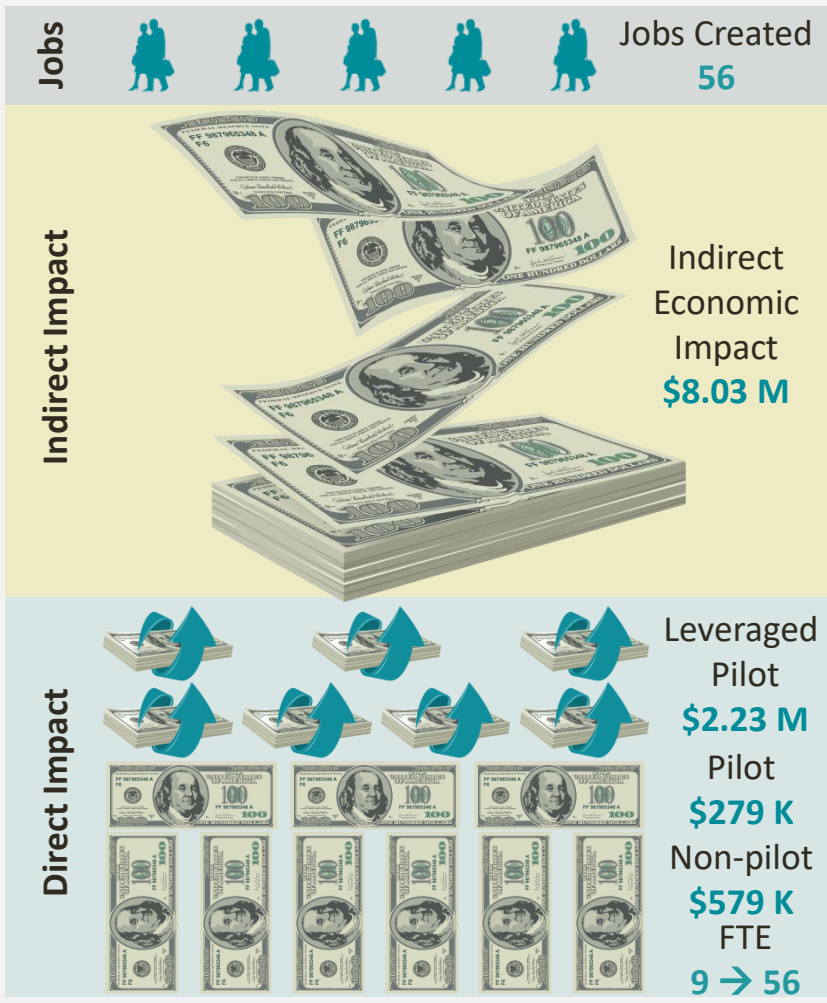
- Found that tobacco smoking is associated with an increased risk of colorectal cancer and this may be related to hypoxia, or low oxygen supply in the tumors.
- Study identified the hypoxia-inducible factor HIF-3 $\alpha$  that is activated in cancer cells and showed colorectal cancer cells that had high HIF-3 $\alpha$  expression showed a dramatic increase in metastatic signature genes and migration ability.



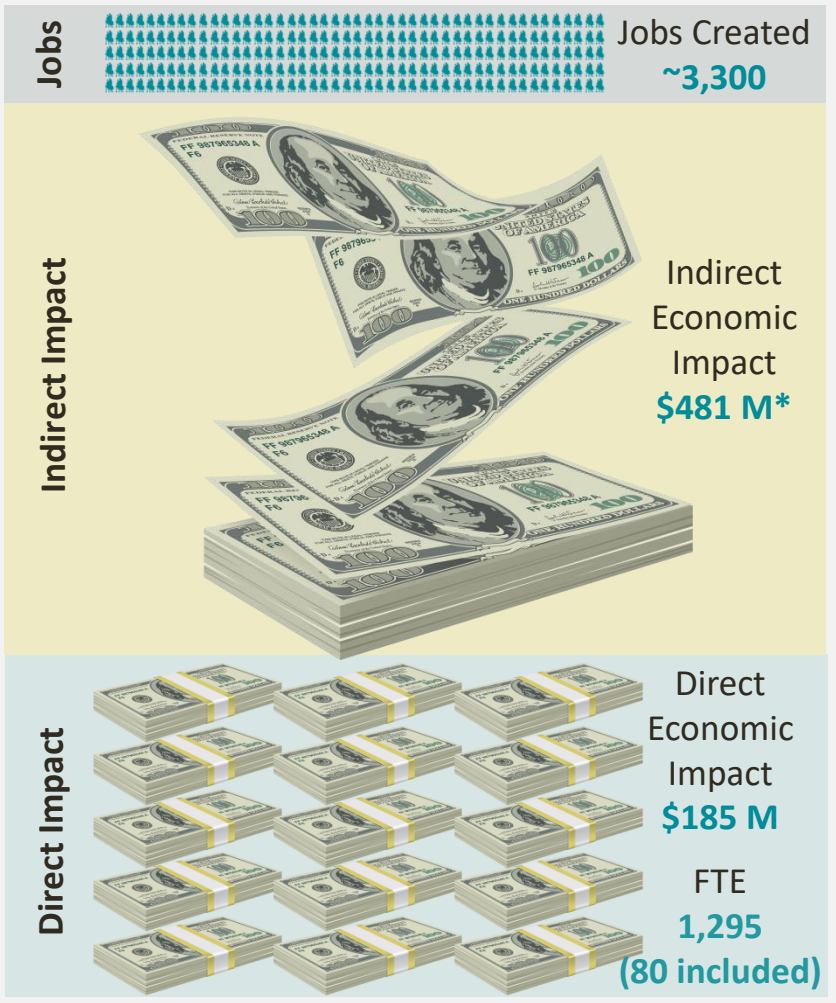


# Estimated Economic Impact

## Tobacco Settlement Funding



## Total Research Funding



# Avisa Pharma Inc.

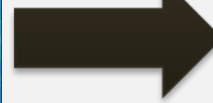
Invention → License → Company



Graham Timmins, PhD  
Associate Professor



US Patent 9518972  
14/045,856



- \$20 just raised before product launch



- 1.75 million in investments over the last year

Albuquerque Business First

# Commercialization

- Since 2004, 28 new NM private companies were either spun off from the university or used university technology to start up.
- A total of 54 new private companies in the US and abroad (1)

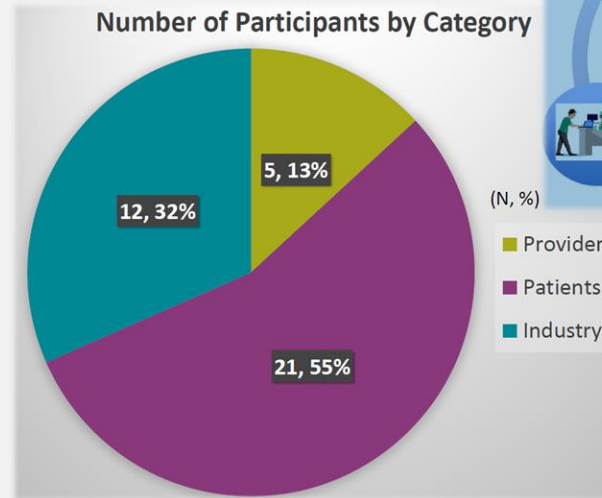


# Tobacco Pilot Funding

## *Medical Cannabis for Treating Chronic Pain: The Patient-Provider-Dispensary Interface*



Robert Rhyne, MD



- We found that older patients prefer cannabis formulations that do not require smoking.
- Younger patients actually prefer to vape or smoke the cannabis products.

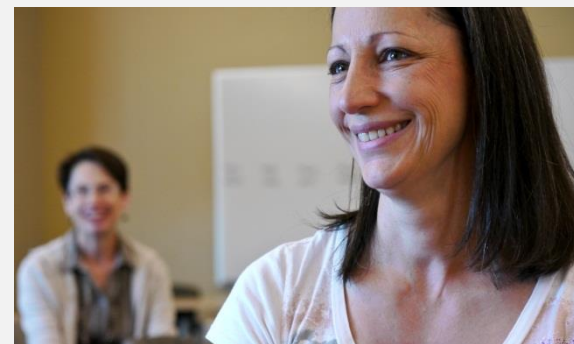
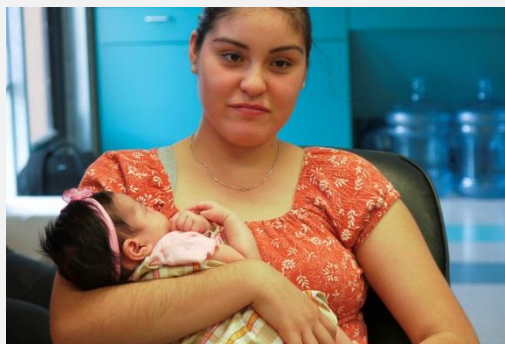
# FY20

# Tobacco Settlement Request

Tobacco Settlement Funds	FY20 Amount	FY21 Request
HSC Instruction & General	560,600	560,600
Research in Genomics and Environmental Health	903,600	903,600
Pediatric Oncology	241,000	241,000
New Mexico Poison & Drug Information Center	569,000	569,000
Specialty Education in Trauma	250,000	250,000
Specialty Education in Pediatrics	250,000	250,000
<b>Total</b>	<b>2,756,101</b>	<b>2,756,101</b>

# What Loss of Tobacco Settlement Means to New Mexico

- Risk of pending arbitration
- Loss of patient care services
- Loss of technology to provide services and conduct research
- Loss of jobs (leveraged)
- Loss of economic activity
- Progressive shift to general fund



# Questions?

# E-Cigarettes

## Not a Healthy Alternative

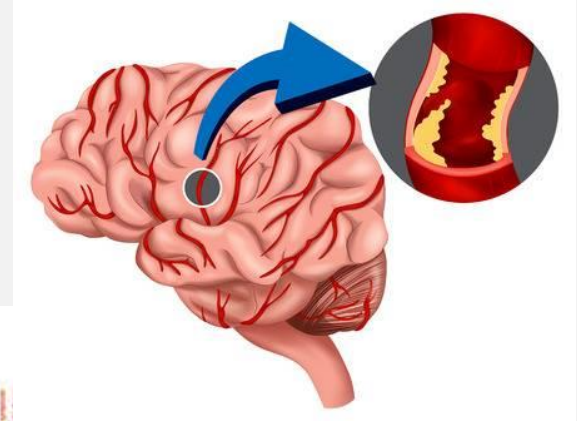
- Not a smoking cessation device
  - Risk of addiction for those who don't already smoke
  - Continuation of addiction for smokers
    - Majority of e-cigarette users continue to smoke cigarettes
- Complete health effects unknown
  - Lack of regulation compared to traditional nicotine replacement
  - E-Liquid contains known carcinogens
  - Unknown long-term effects from inhalation of carrier liquid (propylene glycol, glycerine, polyethylene glycol)
- Other risks
  - E-Liquid toxicity
    - Exposure to e-liquid makes up an increasing proportion of nicotine-related calls to poison centers
    - E-Liquid exposures associated with adverse health effects more often than cigarettes
    - Containers required to be child-proof by federal Child Nicotine Poisoning Prevention Act of 2015



# Tobacco Pilot Funding



## *Effect of Diabetes on Autophagy and Tuberculosis*



Christopher Guest, MD, PhD

- Adverse effects of tobacco use may be linked to abnormal lipid metabolism resulting from inhibition of immune cell autophagy (self-eating) functions.
- Experiments showed that elevated glucose greatly reduced the concentration of autophagy markers in mouse immune cells by up to 94%.