

# University of Kentucky Research Enterprise

Status

Priorities

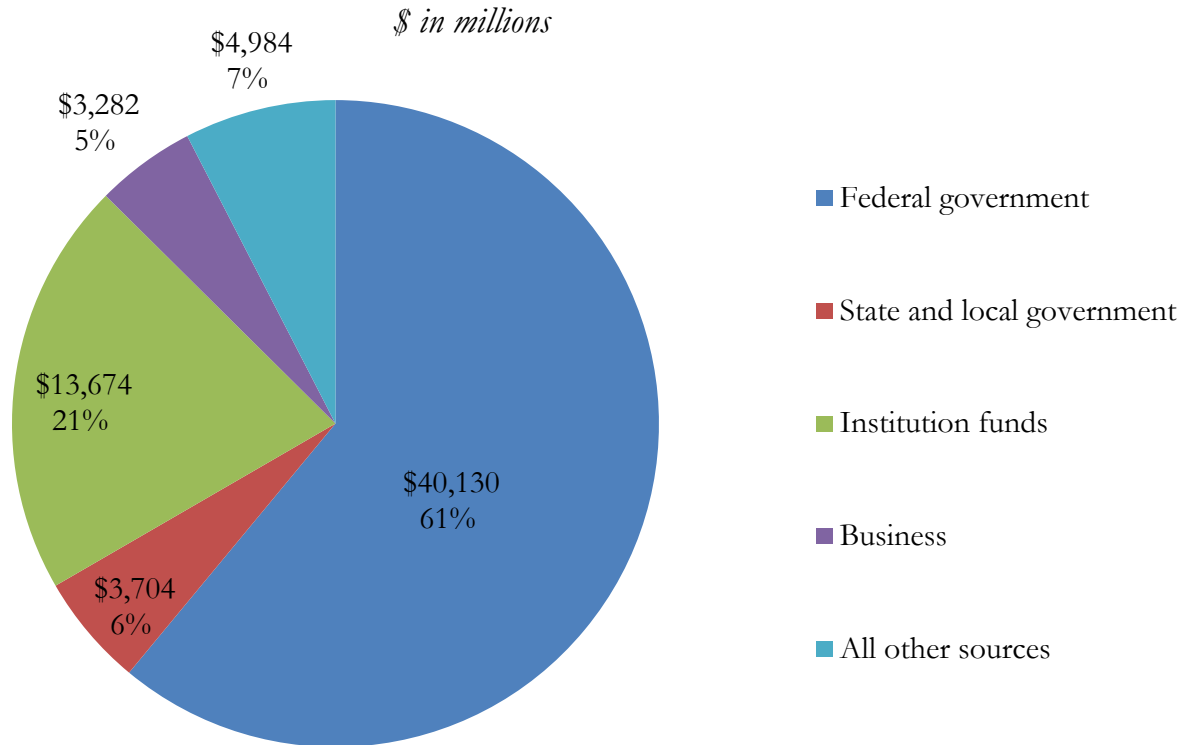
Investments

It's still not recovering

# FEDERAL RESEARCH ENVIRONMENT

Total higher education research expenditures were \$65.8 billion in FY12\*; more than 60% was funded by the federal government

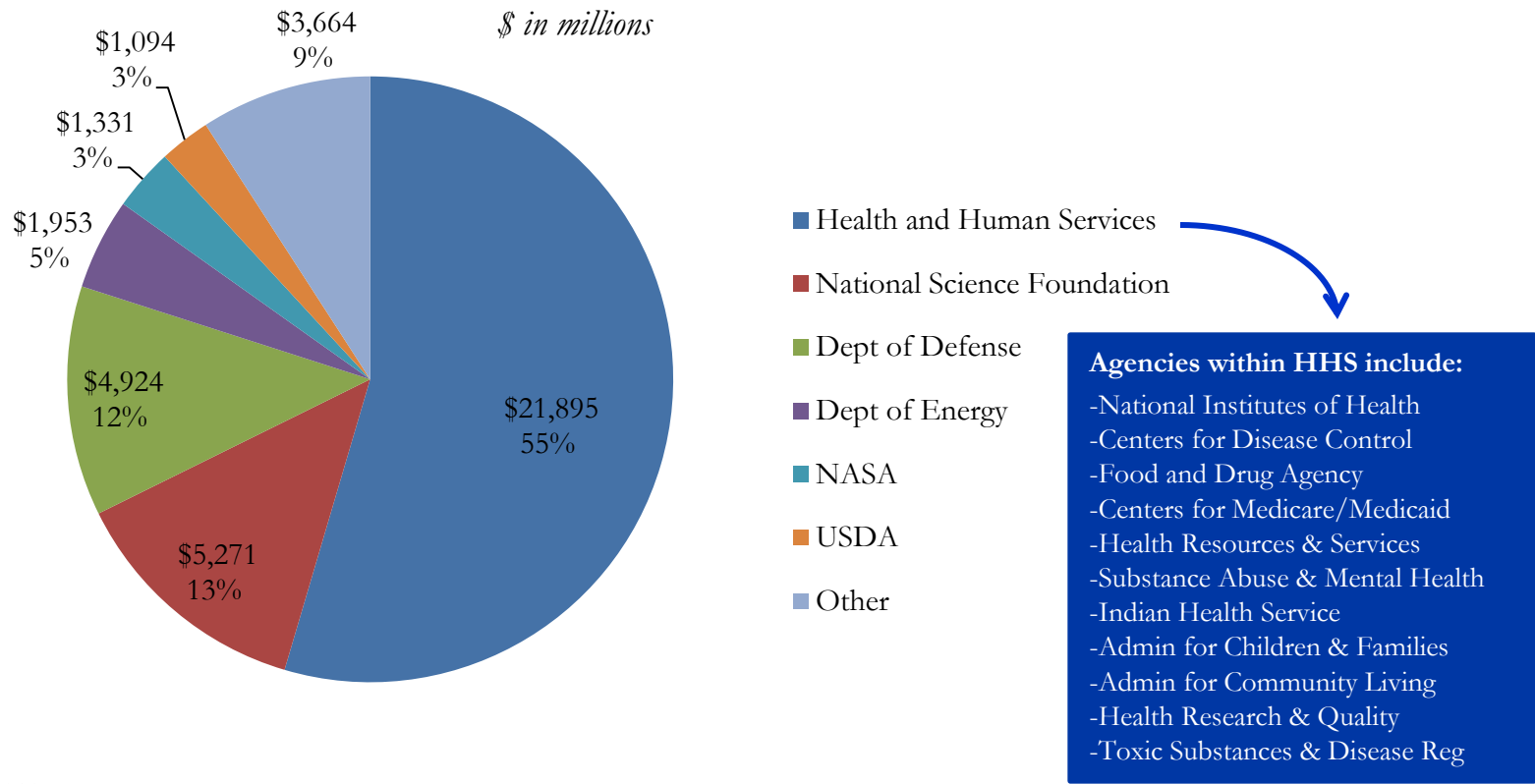
**Higher Education  
Total Research & Development Expenditures, FY12\*  
By Source of Funds  
100% = \$65.8 billion**



\* Latest year available

# Just over half of the federal component is funded by Health and Human Services, of which NIH is the biggest contributor

## Higher Education Federal Research & Development Expenditures, FY12\* By Federal Agency 100% = \$40.1 billion

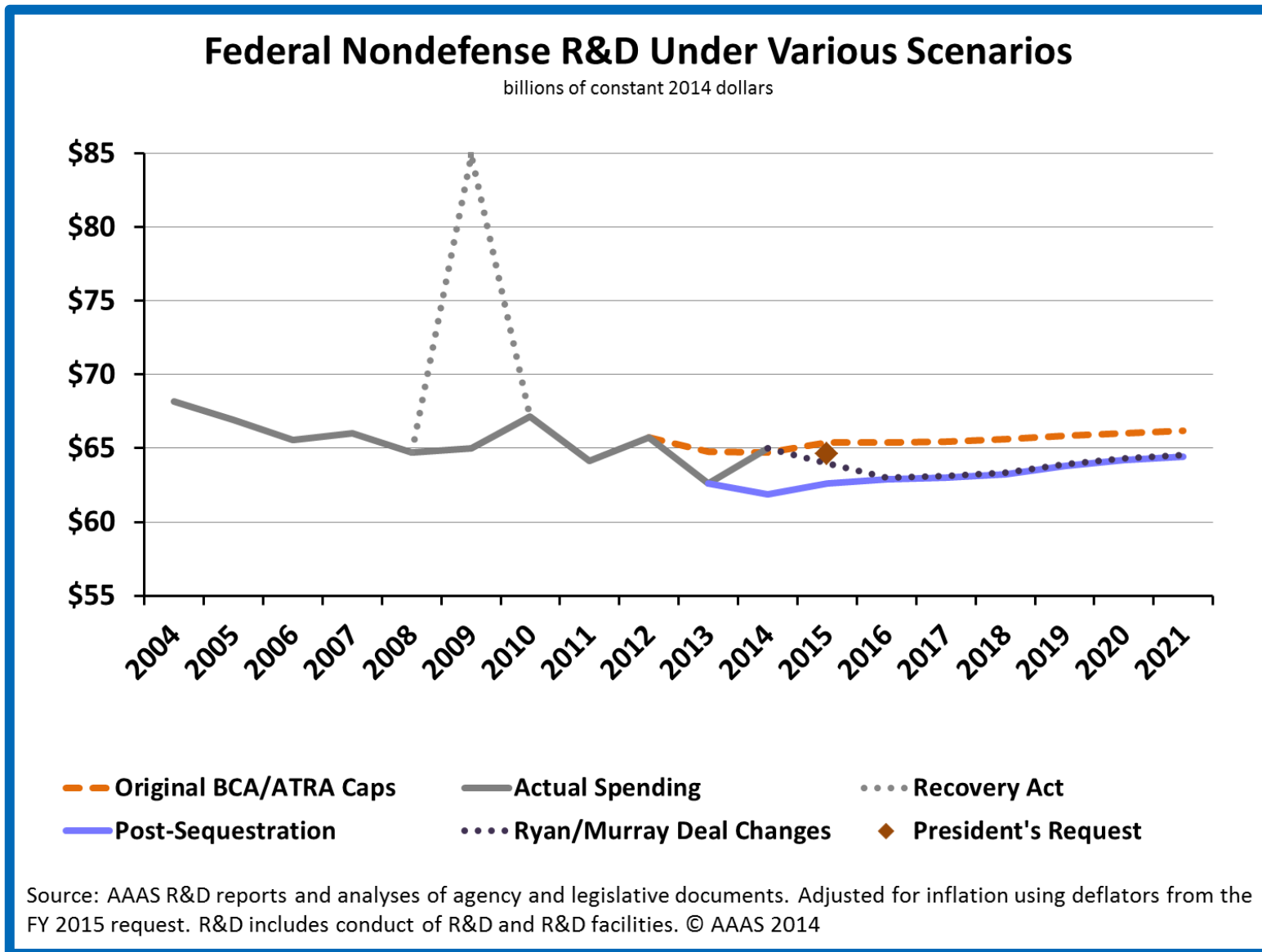


\* Latest year available

Source:

2012 – NSF, National Center for Science & Engineering Statistics, Higher Education Research and Development Survey 2012, Table 3

# And the prospect is that funding will not exceed a flat line in even the best-case scenario



How we are positioned nationally

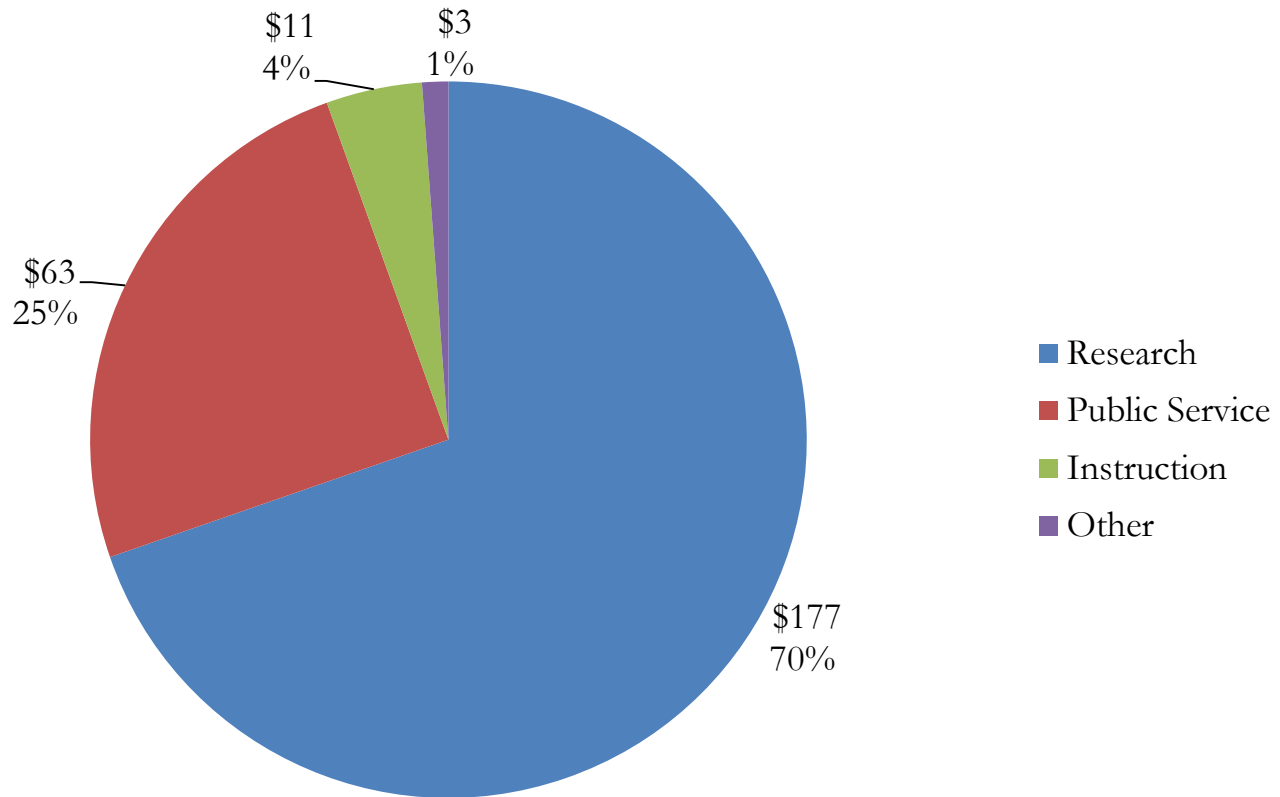
## **UK'S CURRENT RESEARCH PORTFOLIO**

At UK, of the total FY14 Sponsored Program expenditures of \$255 million, 70% (\$177 million) was classified as research

### Total Sponsored Program Expenditures, FY14

100% = \$255 million

*\$ in millions*

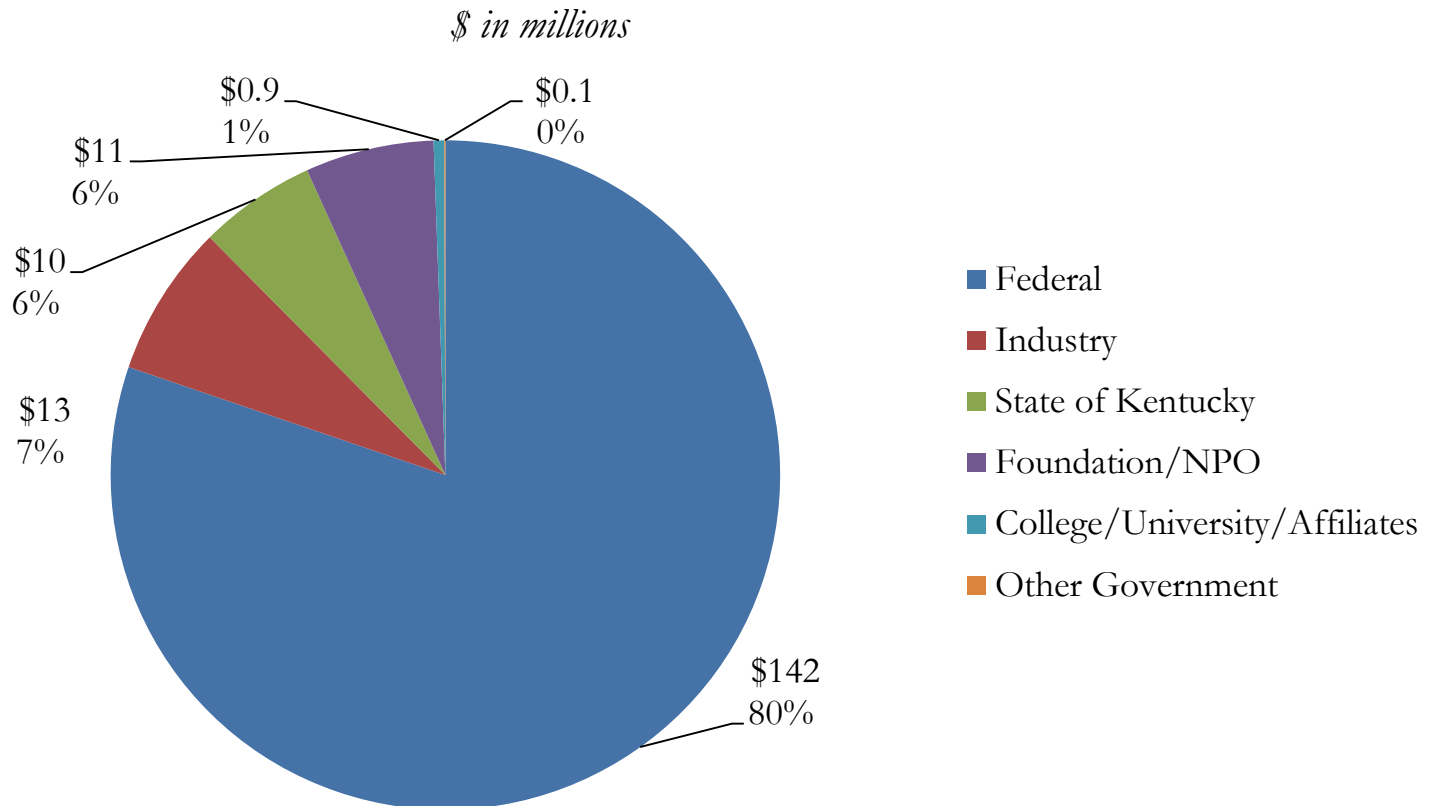


# UK's research is sponsored predominantly by federal agencies

## Total Sponsored Research Expenditures, FY14

### By Sponsor Type

100% = \$177 million

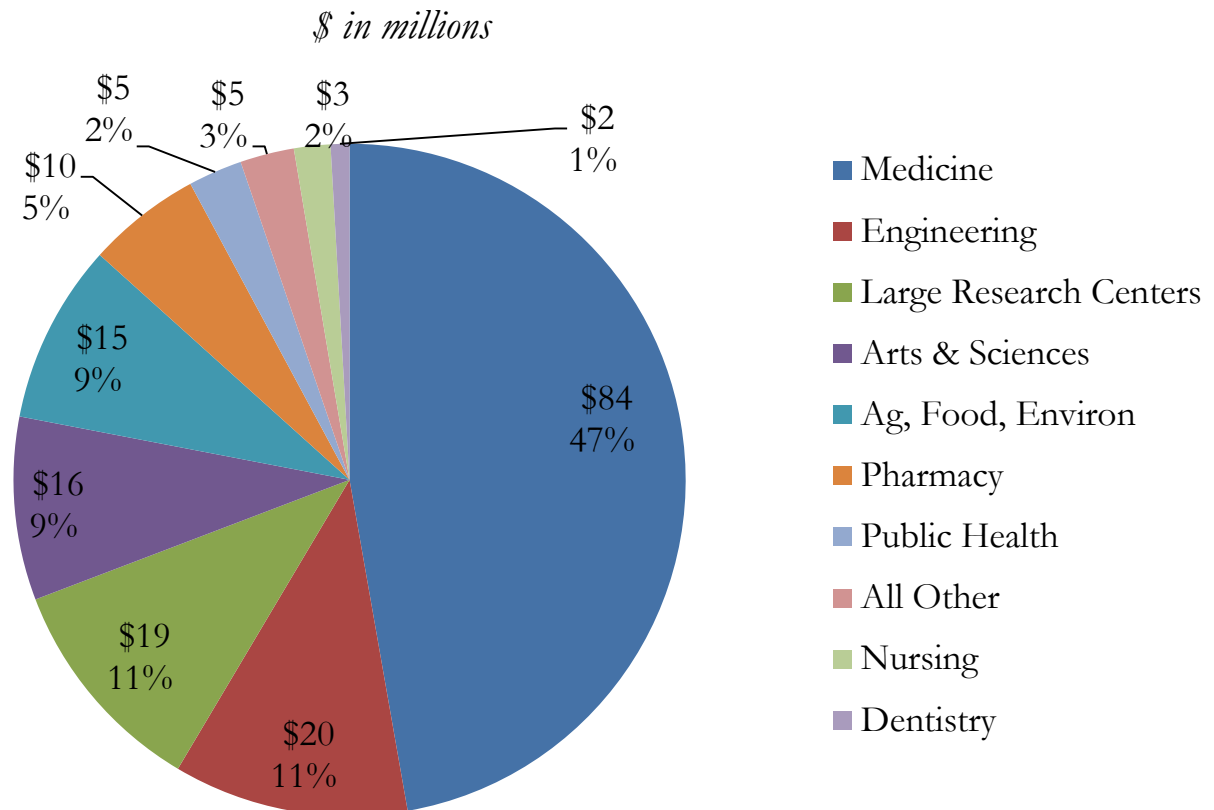




# The College of Medicine is the largest college in research followed by Engineering and large research centers

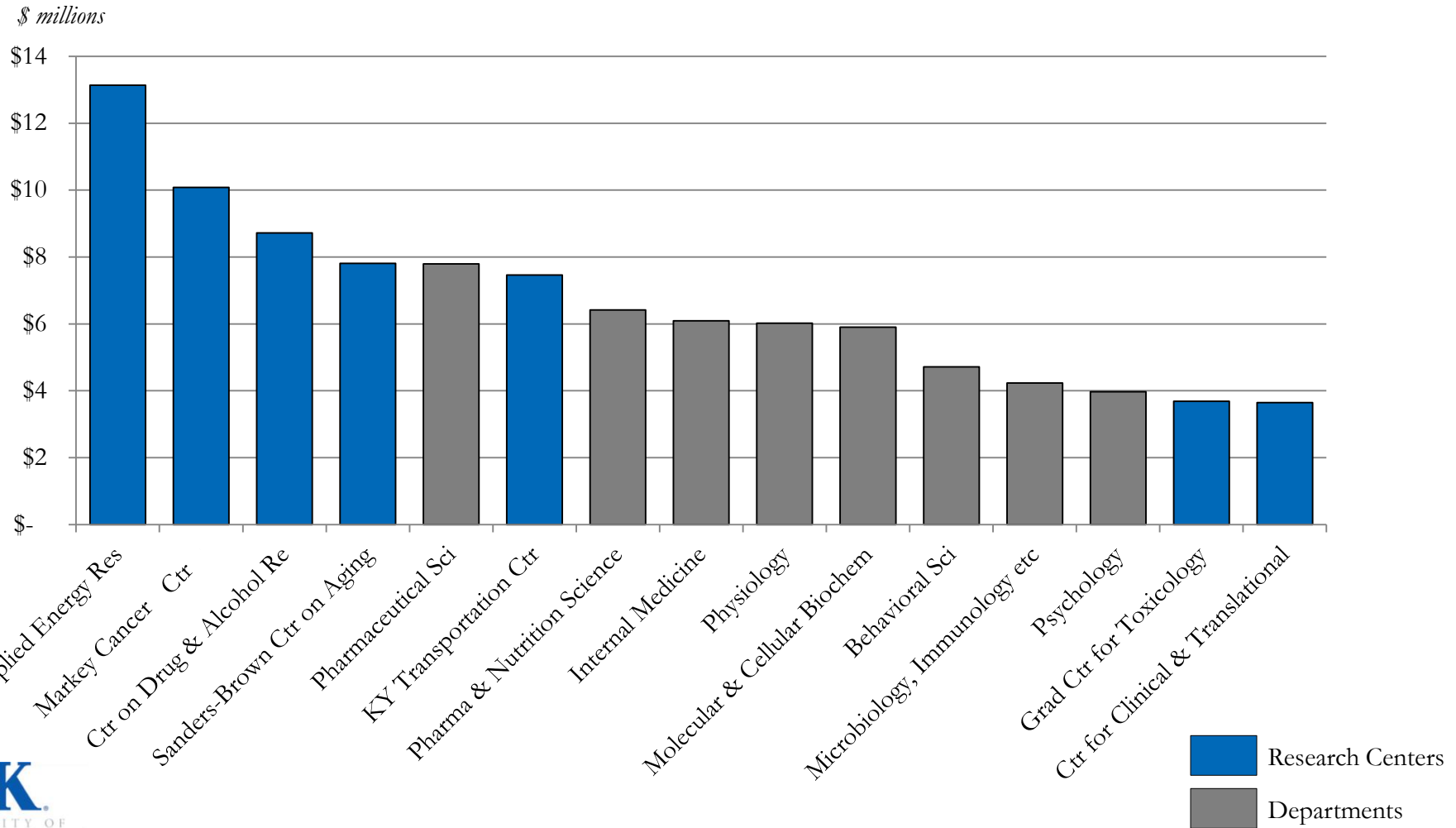
## Total Sponsored Research Expenditures, FY14 By College

100% = \$177 million



# The biggest of the top 15 departments/centers, by FY14 research expenditures, are multidisciplinary research centers

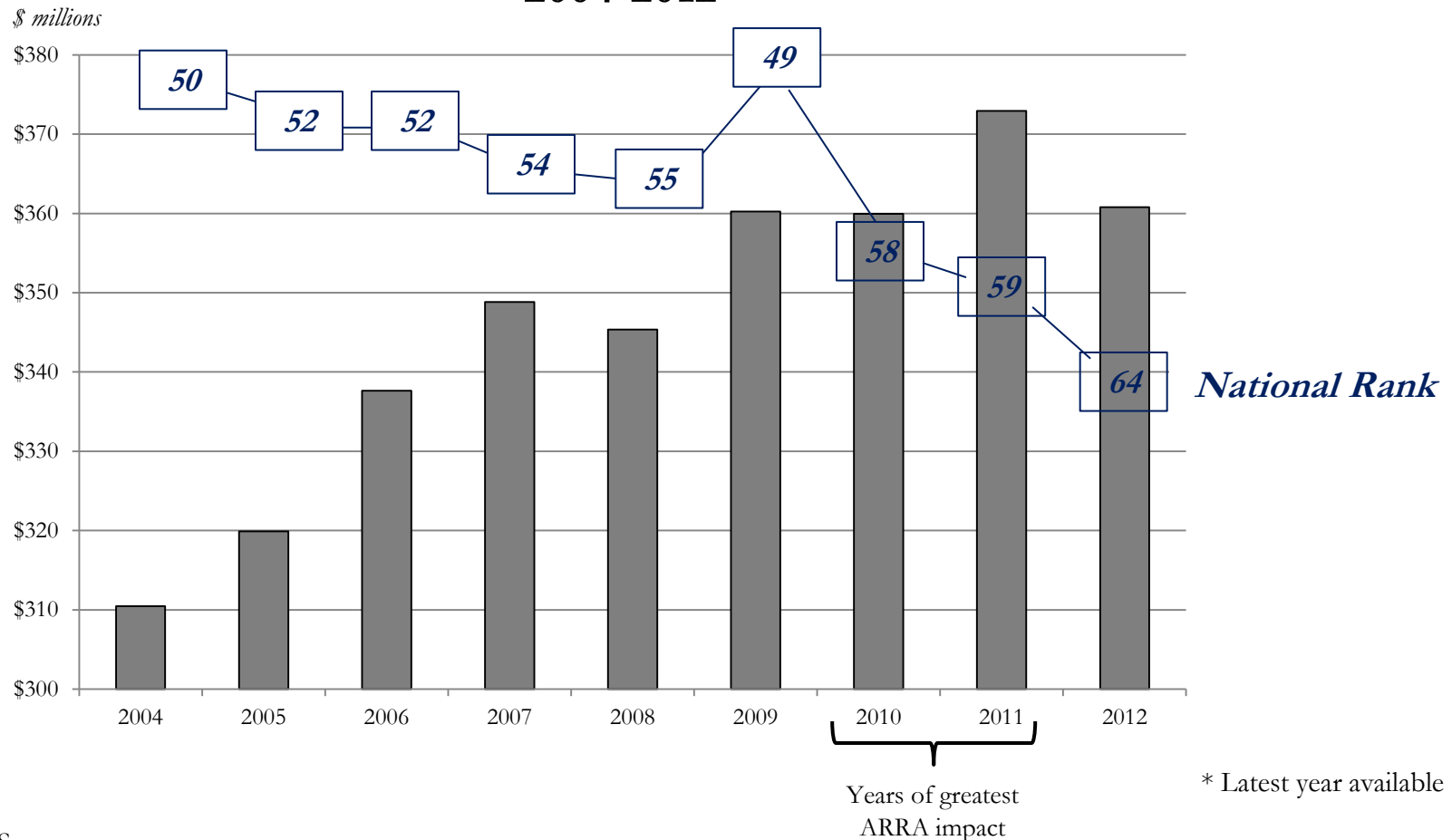
## Highest Volume Research Units, FY14



# HOW DO WE COMPARE WITH PEERS

# While UK's research volume has grown since 2004, its national ranking has declined

## UK Research & Development Expenditures and Rank 2004-2012\*

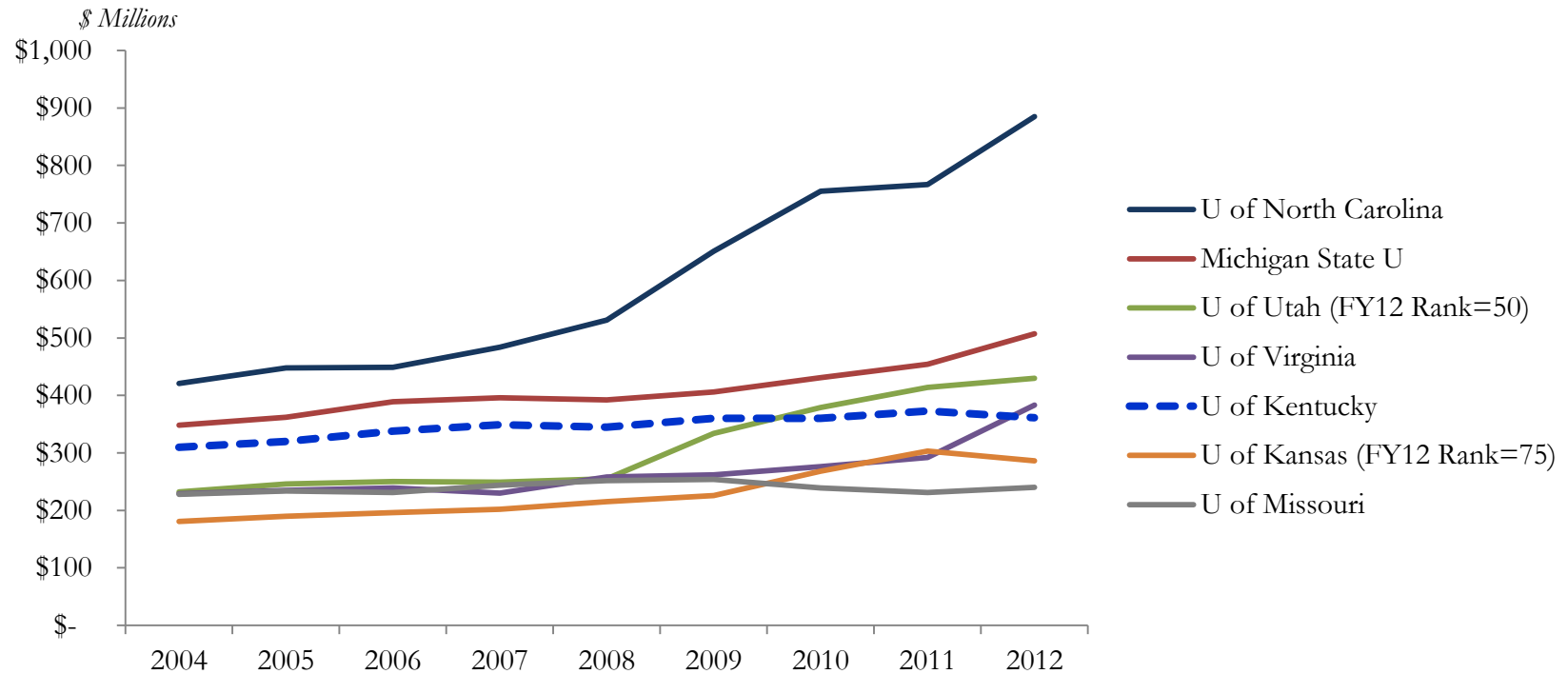


Sources:

2012 – NSF, National Center for Science & Engineering Statistics, Higher Education Research and Development Survey 2012  
 2004 to 2011 - NSF/National Center for Science and Engineering Statistics, Higher Education Research and Development Survey Table 13

# At the same time, the R&D spend of many aspirational research university peers has increased substantially

## National R&D Expenditure for UK vs Benchmarks 2004-2012\*



\* Latest year available

Sources:

2012 – NSF, National Center for Science & Engineering Statistics, Higher Education Research and Development Survey 2012  
 2004 to 2011 - NSF/National Center for Science and Engineering Statistics, Higher Education Research and Development Survey Table 13

In this competitive environment, UK's national rankings show it situated toward the bottom of a set of benchmark institutions

### Higher Education R&D Rankings – UK vs Benchmarks

Institution	FY04 Research \$ (millions)	FY04 Higher Ed R&D Rank	FY12 Research \$ (millions)	FY12 Higher Ed R&D Rank
University of North Carolina	\$417	30	\$885	11
Michigan State University	\$325	39	\$507	36
University of Utah	\$232	63	\$430	50
University of Virginia	\$229	67	\$383	59
<b>University of Kentucky</b>	<b>\$298</b>	<b>50</b>	<b>\$361</b>	<b>64</b>
University of Kansas	\$181	83	\$286	75
University of Missouri	\$218	69	\$240	88

# UK RESEARCH IMPERATIVE

# UK must be the research university for Kentucky...

- Make thoughtful strategic decisions on our research investments
- Focus on solving Kentucky's biggest and most complex problems
- Invest in areas of strength that support this mission
- Continue to develop and enable the multidisciplinary teams it takes to tackle these problems

...Only UK has the strength and the breadth of programs to do this for our state



# UK HealthCare impact on research

Rank	Name – School of Medicine	NIH Funding (in millions)
29	Northwestern U at Chicago	\$169
30	Case Western Reserve U	\$165
31	U of Chicago	\$160
32	Albert Einstein College of Medicine	\$156
33	U of Iowa	\$147
34	UT Southwestern Medical Center	\$146
35	U of Maryland Baltimore	\$141
36	U of Rochester	\$140
<b>37</b>	<b>U of Utah</b>	<b>\$134</b>
38	U of Illinois	\$131
39	U of Massachusetts Medical School Worcester	\$129
40	Ohio State U	\$128
41	U of California Irvine	\$126
42	U of Florida	\$123
43	Weill Medical College of Cornell U	\$112
<b>44</b>	<b>U of Virginia</b>	<b>\$110</b>
45	Indiana U-Purdue U at Indianapolis	\$106
46	U of Miami School of Medicine	\$104
47	Boston U Medical Campus	\$102
48	Medical College of Wisconsin	\$89
49	Wake Forest U Health Sciences	\$84
50	Cleveland Clinic Lerner Com-CWRU	\$82
51	Dartmouth College	\$82
52	U of Texas Health Science Center Houston	\$79
53	Medical U of South Carolina	\$78
54	Virginia Commonwealth U	\$77
55	U of Texas Medical BR Galveston	\$76
<b>56</b>	<b>U of Kentucky</b>	<b>\$76</b>

## NIH FUNDING

\$76.4M Current amount

+ 9.6M Recent grant awards

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~ \$86.0M Total

**Possible new rank = 49**

# Positive Indicators

- ✓ National Science Foundation EPSCoR Award: \$24M
  - Investing \$15.5M in UK's research infrastructure
- ✓ Mark Williams – PCORI grant Effectiveness in Transitional Care
  - A \$15M contract over three years with \$6M coming to UK
- ✓ Wayne Sanderson – NIOSH grant Central Appalachian Region Educational Research Center
  - \$990K awarded

## KENTUCKY TRIFECTA CME EVENT

SATURDAY, OCTOBER 25 at 8:00 A.M.  
Biopharm Complex, Room 124  
789 South Limestone Street, Lexington

The College of Medicine has a "trifecta" of national federal funding. We are one of 22 medical centers in the United States that:

- earned Clinical and Translational Science Award
- received NCI designation for our Cancer Center, and
- have a federally funded Alzheimer's Disease Center

Experts will discuss the importance of this "trifecta."

### FACULTY PRESENTERS



**B. Mark Evers, MD**

"Markey Cancer Center NCI Designation One Year Evaluation: Impact on the institution, region, and state; and future plans"

*Director, Markey Cancer Center  
Professor and Vice Chair for Research, Department of Surgery  
University of Kentucky  
College of Medicine  
Lexington, Kentucky*



**Linda Van Eldik, PhD**

"What's New in Alzheimer's Disease: Clinical Trials at the Sanders-Brown Center on Aging"

*Director, Sanders-Brown Center on Aging and Alzheimer's Disease Center  
Professor, Department Anatomy and Neurobiology  
University of Kentucky  
College of Medicine  
Lexington, KY*



**Philip Kern, MD**

"The UK Center for Clinical and Translational Science – part of the UK Triple Crown"

*Associate Professor for Clinical and Translational Sciences  
Director, Barnstable Brown Diabetes and Obesity Center  
Director, Center for Clinical and Translational Sciences  
University of Kentucky  
College of Medicine  
Lexington, KY*

To register, please follow this link: <https://mednet.mc.uky.edu/alumniweekend/register.aspx> or contact Kristin Shattuck at [kristin.shattuck@uky.edu](mailto:kristin.shattuck@uky.edu); 859-323-5834.

PRESENTED BY:

**UKHealthCare.**



*A continental breakfast will be served*

**ACCREDITATION** The University of Kentucky College of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. The University of Kentucky College of Medicine designates this live activity for a maximum of 1.5 AMA PRA Category 1 Credit(s)<sup>™</sup>. Physicians should only claim credit commensurate with the extent of their participation in the activity. The University of Kentucky College of Medicine presents this activity for educational purposes only. Participants are expected to utilize their own expertise and judgment while engaged in the practice of medicine. The content of the presentations is provided solely by presenters who have been selected for presentations because of recognized expertise in their field.

How do we do this?

**WE NEED TO FOCUS INVESTMENTS-  
PEOPLE, FACILITIES AND INFRASTRUCTURE**

# Other institutions are making sharp, competitive moves.

## Some examples:



The University of Southern California recruited Drs. Arthur Toga and Paul Thompson plus their 100+ person scientific team running the Lab of Neuro Imaging at UCLA (\$12M annual budget). U/Penn was rumored to be courting them as well.



For its Knight Cancer Institute, Oregon Health & Science University recruited Dr. Charles Blanke from The University of British Columbia (\$40M in funding). OHSU is in securing \$500M in donations to match \$500M put up by Phil Knight of Nike.



MD Anderson recruited Dr. Ronald DePinho from Dana Farber Cancer Institute as President of MD Anderson's Cancer Center. A 55-person team, and their funding, followed him to Houston.



CHLA recruited Dr. Bradley Peterson from Columbia University Dana Farber Cancer Institute as inaugural director of the Institute for the Developing Mind. He brought 18-20 researchers and their funding.

## Additional examples include:



The University of Florida has created a plan to rise to national “preeminence” by recruiting top talent for its research strategy. It is backed by state funding and almost \$1B in private fundraising.



Since its inception, the University of Utah’s USTAR has attracted 50 leading researchers from MIT, Harvard University, UCLA, Case Western, University of Arizona, Oak Ridge National Laboratory, and other top research institutions



Northeastern University is planning to build a state-of-the-art, 220,000 square foot, Science and Engineering research building scheduled to open in 2016. This facility will provide space for Northeastern’s ongoing faculty hiring initiative.

## And UK itself has engaged in such competitive moves



- Recruited Dr. Mark Evers from the University of Texas Medical Branch along with many colleagues from his laboratory
- Dr. Evers leads the Markey Cancer Center, which under his leadership has become the only NCI-designated Cancer Center in Kentucky

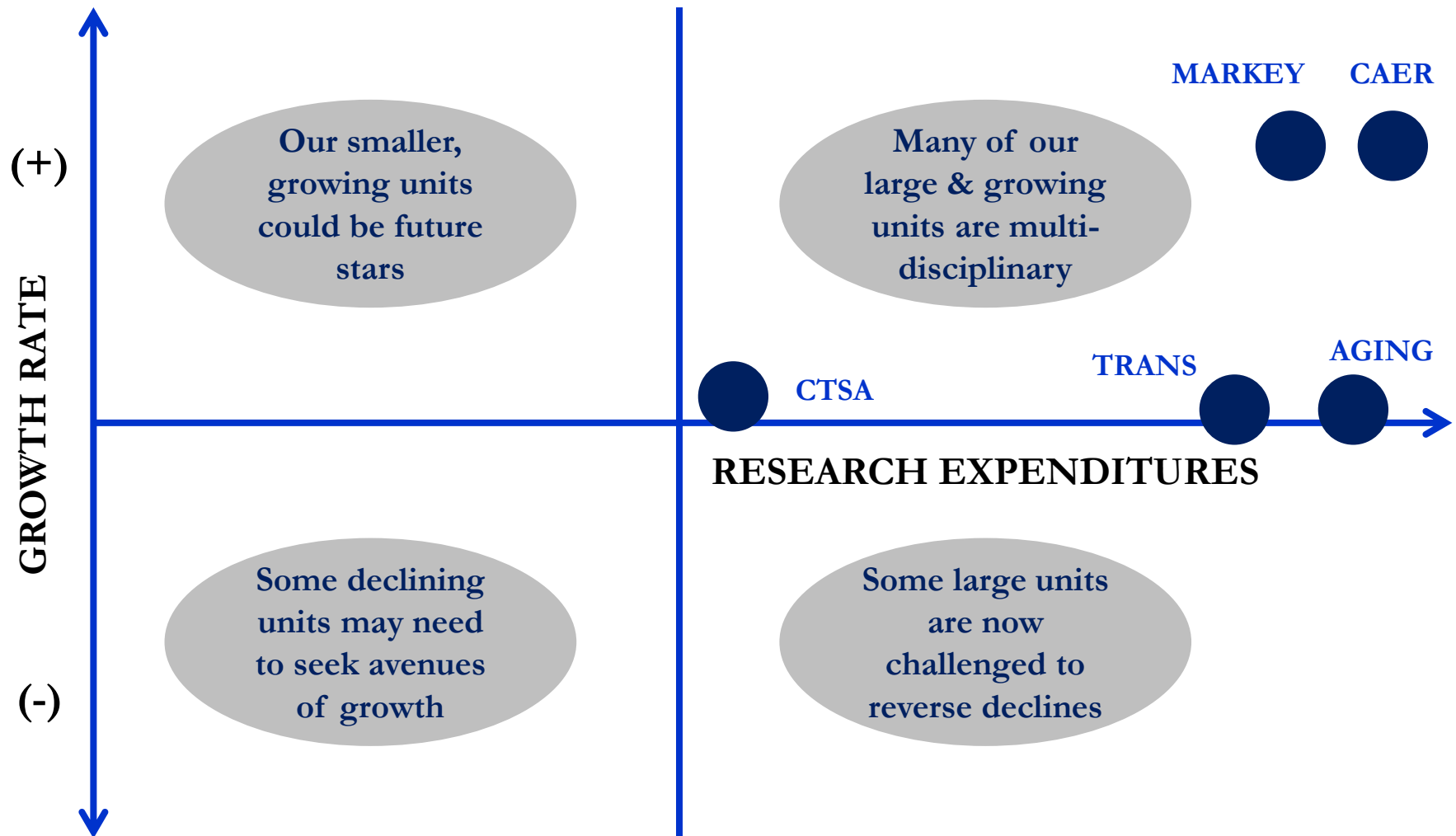
**Fulfilling our land grant mission by solving Kentucky's most complex and intractable problems is what excites and motivates our best researchers**

## These investments pay across campus...



- Recruited Dr. Kunlei Liu from the Babcock & Wilcox Company along with with a \$1.5 million investment from EON-US (now LGE/KU) to start carbon capture program for coal fired power plants.
- Dr. Liu founded industrial consortium (CMRG) in 2008, receiving \$1.8 million annually in support.
- Dr. Liu has built a group of 39 researchers, including 6 coop students, and \$28 million in active grants.

# Centers, organized around multidisciplinary teams, are large and growing





# College of Medicine data reveal the power of multidisciplinary teams in generating high levels of research funding per square foot

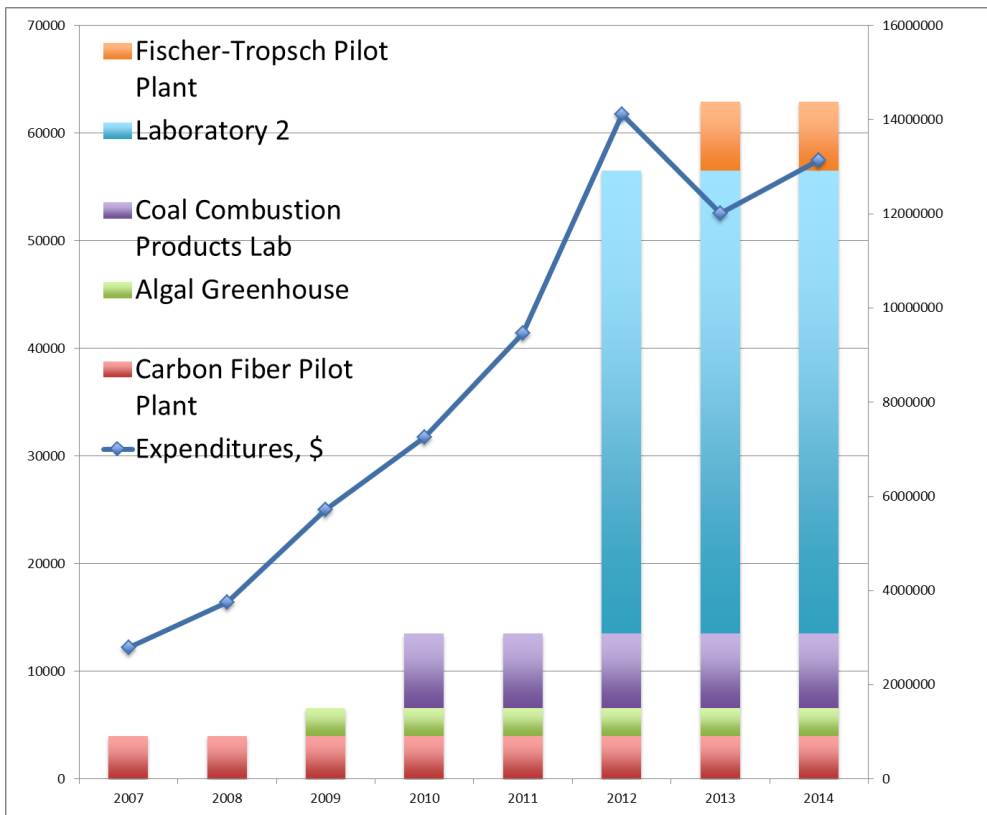
COM Department/Center/Team	Res \$/Ft <sup>2</sup>
Center on Aging	363
Toxicology	318
Nutritional Sciences	241
Anatomy & Neurobiology	227
Physiology	211
Markey Cancer Center	166
Microbiology & Immunology	138
Internal medicine	102

 Multidisciplinary Centers/Teams

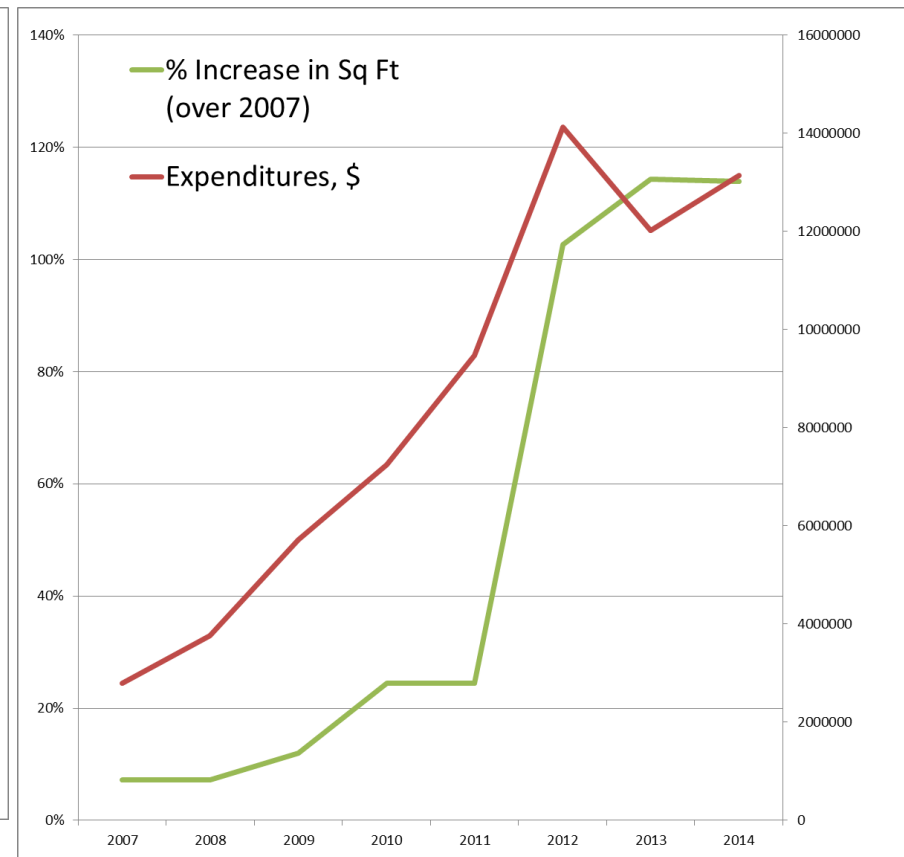
The Markey Cancer Center underscores the strategic point. This rapidly growing center holds some space in reserve to accommodate expected increases in research activity.

# The CAER, which is on a steep growth curve, also demonstrates the strong correlation between space and research volume

## Space Increments vs Research Expenditures



## % Increase in Space vs Research Expenditures



# Quality of Space Matters



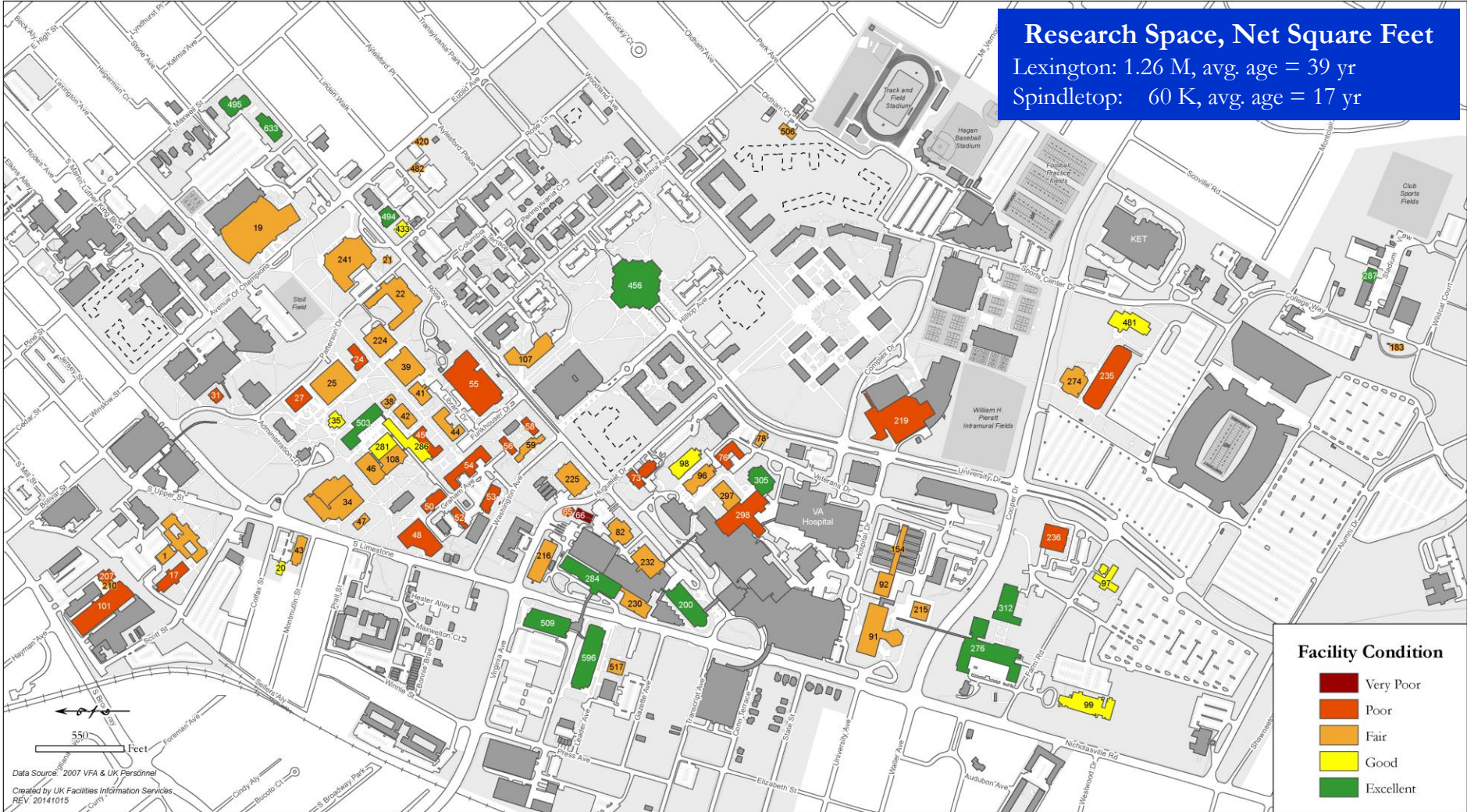
Current College of Medicine space = 253,654 sq. ft.

- 41% of space was built between 1931 and 1979
- 26% was built between 1980 and 2002
- 33% was built between 2003 and 2009

# Research Buildings Facility Condition

- University of Kentucky Lexington Campus -

**Research Space, Net Square Feet**  
Lexington: 1.26 M, avg. age = 39 yr  
Spindletop: 60 K, avg. age = 17 yr



Data Source: 2007 VFA & UK Personnel  
Created by UK Facilities Information Services  
REV. 20141015

- What clearly-defined focus areas for UK research will enable us to address the needs of the Commonwealth, build on our strengths, and achieve distinctiveness relative to our peers?
- What resource commitments will be needed to grow our capabilities and relative position in our designated focus areas?
- What implementation approaches are necessary to ensure the enduring progress of our research enterprise?

Successfully bring all of these components together

## **CENTER OF BIOMEDICAL RESEARCH EXCELLENCE ON OBESITY AND CARDIOVASCULAR DISEASES**