Association of American Physicians
Presidential Address

The American Physician-Scientist:
60 is the new 40

Serpil Erzurum, MD
Chair, Lerner Research Institute
Cleveland Clinic
Thank you

Linda Fried (past president), John Carethers (incoming president), Mitchell Lazar (secretary), Robert Brown (treasurer), and councilors Betty Diamond, Maurizio Fava, David Ginsburg, Todd Golub, Peter Igarashi, John Ioannidis, Daniel Kelly, Mary Klotman, Nancy Davidson, Warren Leonard, Elizabeth McNally, David Thomas.

Lori Ennis
The Doctor
Luke Fildes 1890

‘To put on record the status of the doctor of our time,’ The Times March 17, 1891.
Golden Age of Medicine (1930 - )

Industrial Age
1900 - 1940

Atomic/Space Age
1940-1985

Digital Age
1985 - present
CONCEPTION OF THE AAP 1885

Francis Delafield – 44
Columbia

William Draper – 55
Columbia

William Osler – 36
U. Pennsylvania

James Tyson – 44
Columbia

Robert Edes – 47
NY Practitioner

William Pepper – 42
U. Pennsylvania

George Peabody – 35
New York Hospital
The Fundamental Goals of AAP (1886 and now)

• “The advancement of scientific and practical medicine” (AAP Constitution 1886)

• Election and honoring of physicians who have made outstanding and enduring contributions.

• Annual meeting in which to meet and interact with our peers and exchange information.
AAP Membership

2293 members

60 new members inducted yearly
89 Foreign Members

- Canada 26
- Mexico 1
- Belgium 1
- Denmark 1
- U.K. 26
- France 1
- Germany 4
- Greece 1
- Ireland 1
- Italy 3
- Netherlands 2
- Sweden 4
- Switzerland 2
- Lebanon 3
- Israel 2
- China 2
- Japan 5
- Singapore 2
- Australia 2
Daughter Society

• American Society for Clinical Investigation (ASCI) 1907 – ‘Young Turks’
• First ASCI meeting May 11 1908 in DC and AAP meeting followed on May 11 and 12 th.
• Today 67% of AAP are dual members in ASCI

• “the Young Turks are getting rather old”
• American Federation for Clinical Research (AFCR) in 1940 - <41 years and published was eligible.
• After 1940, AFCR, AAP and ASCI meet annually until 1996 [Tri-society].
“there is something inhibiting, I am afraid, about the large number of people....”

“longing nostalgically for the days of smaller meetings.”

“angst over smaller meetings...and loss of young aspiring trainees and faculty...and original unpublished work at the meeting”

AFMR leaves joint meeting

HHMI 2015
AAP
• Sustainable and enduring transformative contributions to medicine across all spectrums of specialties. Takes into account mentorship contributions. Accept 60/y

ASCI
• Individual early scientific accomplishment and attainment of first independent major grant. Traditionally mechanistic bench science, but recently broadened. Accept 80/y
AAP
• Average age of Inductees 57 years old
• Average age of Members 68 years old

ASCI
• Nominees <50 years old since 2013 (was <45 in 1981)
• Average Age of Inductees 45 years old
• Average Age of Members 50 years old
• Senior Members >55 years old*
The Next Generation Researchers Initiative at NIH

Michael Lauer*, Lawrence Tabak*, and Francis Collins*

Michael Lauer et al. PNAS 2017;114:11801-11803
Since the late 1990s, % NIH-funded investigators >60 years has risen compared with other age groups.
Young Children and Older People as Percentage of the Global Population: 1950 - 2050


- Number 60+ 2,092m
- Number 60+ 1,402m
- Number 60+ 901m

16.5% of total worldwide population

12.3% of total worldwide population

2015 2030 2050
• Improvements in life expectancy and health mean that categorising someone as old because they've turned 65 no longer makes sense.

• Instead, look at how long a person may have left to live, based on average life expectancy, PROSPECTIVE AGE.

• Using the new definitions, middle age lasts longer, and the proportion of old people actually falls over time
Percentage Increase in Proportions “Old” from 2013 to 2050, Using Measures Unadjusted and Adjusted for Longevity Change, Germany.

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0121922
**Age vs. Old – It is Relative to Average Life Expectancy**

Average Life Expectancy

- **1800 - 1850:** ~35 years
- **1900:** men 46, women 48
- **1940:** men 60, women 65
- **2018:** men 81, women 86
- **By 2070:** up to 120 years old

**Age of AAP Council**
Like the general population, physicians in the United States are aging

42% of practicing physicians in the US > 55 years old
~336,000 of ~800,000

One in 4 is > 65 years old

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Family practice</td>
<td>38%</td>
</tr>
<tr>
<td>Internal medicine</td>
<td>40%</td>
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<tr>
<td>Family practice</td>
<td>38%</td>
</tr>
<tr>
<td>Internal medicine</td>
<td>40%</td>
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<tr>
<td>Otolaryngology</td>
<td>45%</td>
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<tr>
<td>Neurology surgery</td>
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<tr>
<td>Radiology</td>
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<tr>
<td>Urology</td>
<td>48%</td>
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<tr>
<td>Ophthalmology</td>
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<tr>
<td>General surgery</td>
<td>50%</td>
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<tr>
<td>Neurology</td>
<td>52%</td>
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<tr>
<td>Orthopedic surgery</td>
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<tr>
<td>Cardiology</td>
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<tr>
<td>Psychiatry</td>
<td>59%</td>
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<tr>
<td>Oncology</td>
<td>66%</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>73%</td>
</tr>
</tbody>
</table>

SUCCESSFUL AGING OF PHYSICIANS

Survey of 7288 US physicians on work lives, satisfaction and burnout showed that late career MDs were the most satisfied and had lowest rates of distress.


Satisfaction is dependent on psychological construct of optimism and purpose in life.
The scientific workforce has aged more rapidly in recent years relative to the workforce as a whole.
Why the US science and engineering workforce is aging rapidly
David M. Blau, and Bruce A. Weinberg PNAS doi:10.1073/pnas.1611748114 2017

• The main causes have been a decline in the retirement rate of older scientists, which occurred after the elimination of mandatory retirement in universities, and a convergence to the steady-state distribution as the baby boom cohort has aged.

• Current trends imply a further substantial increase in the age of the scientific workforce in coming years.
Are you devoted to your work?
Do you aim for very high achievement?
To the exclusion of leisure activity?

When you think of retirement – do you wonder, what else would I do?
GENERATIONAL IMPACT ON BEHAVIOR AND LIFESPAN

Greatest Generation
Pre - 1933

Silent Generation
1933 - 1945

Baby Boomers
1946 - 1964

Generation X
1965 - 1979

Millenials
1980 - 1995

Generation Z
1996 - present

Golden Age of Medicine (1930 - )
GENERATION Z:
CONNECTED FROM BIRTH.
Born mid-1990s to 2010.
Digitizing Life
The average person is likely to generate more than one million gigabytes of health-related data in their lifetime. Equivalent to 300 million books.

IBM Watson Health
The NIH Data Commons
Digital Ecosystems for using and sharing Data

science commons
Individual Risk

- DNA
- Transcriptome
- Proteome
- Metabolome
- Cells
- Organs

Risk
Living Conditions
| Risk
| Organs
| Cells
| Metabolome
| Proteome
| Transcriptome
| DNA
Cultural Traditions

- Diet
- Exercise
- Microbiome

Living Conditions

Risk

- Organs
- Cells

Metabolome

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Transcriptome

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Gen Z Attributes

• True digital natives – born connected
• Can receive and send multiple sources of information rapidly
• Think and Communicate and Consume information with images
• Collaborative – teamwork
• Exceptionally resilient and realists

The Last Fully Human Generation?
Everything is Changing

Healthcare is changing.

Research is changing.

People are changing.
What will this meeting be like in 2050?
What will we be like in 2050?
AAP in the year 2050

There will be a joint meeting in April/May (probably in Chicago).

We will on average be older (like the rest of the world).*

We will (still) be passionate about science, and physician-led science.

AAP will (still) be inducting physicians who are leading the discoveries that are transformative to patient care, and looking to mentor and inspire young(er) scientists.

*We will be older but not old.
The Meeting in 2050

We will be in the second wave of transformation in medicine related to the Digital Age, as great or greater than that experienced by the founders in late 1800’s.

The increasing data, and ease and speed of analytics will revolutionize the science and practice of medicine.

Inductees with Clinical Informatics as their ABIM specialty, expertise in emerging data sciences for discovery, artificial intelligence, bioengineering (genetic editing and 3D printing).
The best thing about the future is that it comes only one day at a time.

Abraham Lincoln