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FACING THE FUTURE IN MEDICINE

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(GREETINGS TO HOSTS, GUESTS)

I'M DELIGHTED TO BE YOUR GUEST TODAY AND I'M ESPECIALLY HONORED TO SPEAK IN A FORUM THE BEARS THE NAME OF "JOHN WARNER DUCKETT." BOTH MEN -- FATHER AND SON -- ARE SPECIAL PEOPLE AND, IN MY MIND AND, I'M SURE, IN THE MINDS OF THE THOUSANDS OF COLLEAGUES AND PATIENTS WHO HAVE KNOWN THEM -- THEY EPITOMIZE WHAT GOOD MEDICINE IS SUPPOSED TO BE ALL ABOUT.

MY FIRST MEETING WITH WARNER DUCKETT TOOK PLACE SOME YEARS AGO. IT WAS AN ODD INTRODUCTION, BUT, AS I WAS TO LEARN IN THE YEARS SINCE, IT WAS ALSO CHARACTERISTIC OF HIS INDEPENDENCE OF MIND AND SPIRIT. IT HAPPENED IN PITTSBURGH AT A PROFESSIONAL MEETING.

I WAS AT THE ROSTRUM OF ONE OF THE SESSIONS, DISCUSSING, AMONG OTHER THINGS, THE PROBLEMS POSED BY BILIARY ATRESIA IN INFANTS AND YOUNG CHILDREN. BILIARY ATRESIA WAS, WITHOUT DOUBT, ONE OF THE MOST FRUSTRATING OF PEDIATRIC DISEASES BECAUSE THE NUMBER OF SUCH LESIONS AMENABLE TO SURGICAL CORRECTION WAS SO SMALL, COMPARED TO THE INCIDENCE OF THE PROBLEM.

AT THAT TIME, THERE WERE A HALF DOZEN PEOPLE IN THE COUNTRY WHO CALLED THEMSELVES "PEDIATRIC SURGEONS." I WAS ONE AND I THOUGHT I KNEW WHO ALL THE OTHER FIVE WERE. BUT WHEN I HAD FINISHED MY PRESENTATION AND WAS TAKING QUESTIONS FROM THE FLOOR, A CERTAIN DISTINGUISHED LOOKING GENTLEMAN IN THE BACK OF THE ROOM -- A TOTAL STRANGER TO ME -- GOT UP AND PROCEEDED TO TELL THE ASSEMBLED COLLEAGUES THAT HE HAD HAD BUT THREE PATIENTS IN THE PAST YEAR WITH BILIARY ATRESIA...HE HAD TREATED ALL THREE...AND ALL THREE HAD BEEN SUCCESSFUL.

THIS WAS QUITE UNUSUAL, BECAUSE A SURGEON MAY COME ACROSS MANY PATIENTS WITH BILIARY ATRESIA...BUT IN AN ENTIRE CAREER, A SURGEON WILL SEE ONLY TWO OR THREE CASES IN WHICH THE ATRESIA CAN BE SURGICALLY CORRECTED. IN FACT, IN MY OWN 35-YEAR CAREER AS A PEDIATRIC SURGEON I HAD ONLY FIVE SUCH PATIENTS.

I MADE IT MY BUSINESS TO TALK WITH THIS GENTLEMAN AFTER THE MEETING. AND HE WAS INDEED A PRACTICING PEDIATRIC SURGEON, ALTHOUGH NOT A PURIST. AND THAT CONVERSATION WAS THE BEGINNING OF A LONG AND WARM FRIENDSHIP WHICH HAS CONTINUED WITH THE NEXT "JOHN WARNER DUCKETT."

AS MANY OF YOU KNOW, I HAD THE GOOD FORTUNE OF MEETING UP WITH YOUNG JOHN AND WAS INSTRUMENTAL IN BRINGING HIM TO THE CHILDREN'S HOSPITAL OF PHILADELPHIA AS DIRECTOR OF PEDIATRIC UROLOGY. HE IS THE WORLD'S OUTSTANDING PRACTICING PEDIATRIC UROLOGIST, EXHIBITING THE SAME KEEN INTELLIGENCE AND INDEPENDENT SPIRIT THAT HAS CHARACTERIZED HIS DISTINGUISHED FATHER.

ALL THAT IS BY WAY OF SAYING THAT I AM DEEPLY HONORED -- AND JUST A BIT INTIMIDATED -- AS I PREPARE TO DELIVER A LECTURE THAT BEARS THE "DUCKETT" FAMILY NAME.

LET ME BEGIN WITH A FEW OBSERVATIONS ABOUT THE CURRENT ENVIRONMENT FOR MEDICINE. NOT THE <u>POLITICAL</u> ENVIRONMENT AND NOT THE <u>ECONOMIC</u> ENVIRONMENT...THERE ARE WHOLE BATTALIONS OF PEOPLE WHO LOVE TO TALK AND WRITE ABOUT THOSE THINGS. AND ALL I CAN SAY IS, "BETTER THEY THAN I."

NO, MY INTEREST THIS MORNING IS TO TALK ABOUT A LITTLE BIT ABOUT THE DEMOGRAPHIC ENVIRONMENT AND THE RESEARCH ENVIRONMENT. THEY MAY OR MAY NOT FIT TOGETHER IN ONE SPEECH -- WE'LL SOON SEE -- BUT THEY MOST CERTAINLY HAVE TO FIT TOGETHER IN THE SINGLE CAREER PLANNING OF EACH PERSON IN MEDICINE TODAY. I THINK THEY ARE VERY IMPORTANT SUBJECTS AND I WANT TO SPEND THE NEXT FEW MINUTES EXLPORING THEM WITH YOU.

LET ME BEGIN, THEREFORE, WITH SOME WORDS ABOUT WHAT WE MIGHT CALL "THE DEMOGRAPHY OF CARE."

I BELIEVE IT IS ESSENTIAL FOR EACH OF US, WHEREVER WE PRACTICE, TO UNDERSTAND HOW THE AMERICAN POPULATION IS CHANGING. THIS IS A MAJOR CHALLENGE TO ANYONE IN HEALTH CARE. IT SEEMS CLEAR THAT THE OLD WAYS OF DOING THINGS -- NO MATTER HOW SUCCESSFUL THEY'VE BEEN IN THE PAST -- WILL PROBABLY NOT BE WORK AS WELL FOR US IN THE FUTURE.

I'M SURE YOU'VE COME UPON THOSE ARTICLES IN POPULAR MAGAZINES ABOUT THE "GRAYING OF AMERICA." WELL, THEY'RE ALL TRUE. THE POST-WORLD WAR II "BABY BOOM" GENERATION IS NOW OUR ADULT WORK-FORCE. IT IS THE BEST EDUCATED ADULT COHORT IN OUR HISTORY. IT RUNS OUR FACTORIES AND FARMS, DOMINATES OUR POLITICAL LIFE, AND IS AT THE VERY CORE OF OUR NATIONAL VITALITY.

DURING THIS DECADE AND THE DECADE OF THE 1990s, THIS AGE GROUP WILL MOVE UP AND DOMINATE THE U.S. POPULATION AGE PYRAMID, ACCOUNTING FOR ABOUT 40 PERCENT OF THE PEOPLE OF AMERICA.

THIS GENERATION -- NOW IN ITS MID AND LATE 20s -- IS LIVING BETTER AND WILL BE LIVING LONGER BECAUSE IT IS THE BENEFICIARY OF ABOUT 30 YEARS OF SUCCESSFUL RESEARCH ON THE DETECTION AND TREATMENT OF MOST OF SOCIETY'S MAJOR KILLERS:

§ IN THE 25-44 AGE GROUP, THE DEATH RATE FROM HEART DISEASE HAS DROPPED BE NEARLY HALF JUST SINCE 1965. IT IS THE LEADING CAUSE OF DEATH FOR SOCIETY IN GENERAL, BUT IT IS NUMBER THREE FOR THIS PARTICULAR AGE GROUP. OF COURSE, THAT MEANS FEWER PREMATURE DEATHS AMONG THE "BABY BOOM" GENERATION.

§ CANCER, MANKIND'S MOST PERSISTENT SCOURGE, PRODUCES THE SECOND HIGHEST NUMBER OF PREMATURE DEATHS IN SOCIETY IN GENERAL AND FOR THIS AGE GROUP IN PARTICULAR. WE HAVEN'T SOLVED THE PUZZLE OF CANCER. NEVERTHELESS, WE'VE BEEN ABLE TO DROP THE DEATH RATE FROM CANCER BY 31 PERCENT OVER THE PAST TWO DECADES AMONG PERSONS UNDER THE AGE OF 45 -- THAT "BABY BOOM" GENERATION AGAIN.

§ AND THEN THERE IS STROKE...A COMPLEX DISEASE CLOSELY RELATED TO AN INDIVIDUAL'S PHYSICAL, MENTAL, AND EMOTIONAL HEALTH. IN THE PAST 30 YEARS, WE'VE BEEN ABLE TO REDUCE THE DEATH RATE FROM STROKE BY 49 PERCENT. ONCE AGAIN, THE FIRST GROUP OF AMERICANS TO BENEFIT FROM THIS EXTRAORDINARY ADVANCE IN MEDICINE HAS BEEN THAT SAME "BABY BOOM" GENERATION. IN FACT, ITS MORTALITY RATE FROM STROKE IS ABOUT ONE-FIFTH THE RATE FOR THE COUNTRY AS A WHOLE.

§ THE LEADING CAUSE OF DEATH FOR THE 25-44 AGE GROUP, UNFORTUNATELY, IS THE MOTOR VEHICLE ACCIDENT. AMONG THE YOUNGER MEMBERS OF THE "BABY BOOM" GENERATION, THE HIGHWAY DEATH RATE IS TWICE WHAT IT IS FOR THE WHOLE COUNTRY. AND WHAT'S WORSE, WE SEEM TO BE MAKING NO PROGRESS IN BRINGING IT DOWN.

EVEN WITH THEIR DREADFUL RECORD ON THE NATION'S HIGHWAYS, MANY MORE MEN AND WOMEN OF THE "BABY BOOM" GENERATION WILL BE LIVING SEVERAL YEARS LONGER THAN THEIR PARENTS. THEREFORE, WE CAN EXPECT THAT, AFTER A DECADE OR TWO INTO THE NEXT CENTURY, APPROXIMATELY 1 IN EVERY 5 AMERICANS WILL BE A SENIOR CITIZEN. AT THAT TIME THERE WILL BE MORE THAN 50 MILLION PERSONS OVER THE AGE OF 65, TWICE AS MANY AS THERE ARE TODAY.

I SHOULD ALSO POINT OUT THAT THE MEDIAN AGE IN THE UNITED STATES TODAY IS 30 YEARS AND 7 MONTHS. BUT IN THE YEAR 2000 WE EXPECT THE MEDIAN AGE TO BE 36 YEARS AND 4 MONTHS.

MANY PERSONS AND ORGANIZATIONS THAT DELIVER HEALTH CARE HAVE SEEN THIS KIND OF NUMBER-WRITING ON THE WALL. THEY ARE BEGINNING TO ADJUST THEIR MIX OF SERVICES TO ACCOMMODATE THE GROWTH IN OUR AGED POPULATION. THEY ARE EMPHASIZING HOME HEALTH CARE AND ARE DE-EMPHASIZING INSTITUTIONAL CARE FOR THE ELDERLY.

IN FACT, I WOULD EVEN GO SO FAR AS TO SAY THAT AMONG THE MANY DEVELOPMENTS IN MEDICAL AND HEALTH CARE TECHNOLOGY THAT WILL BE COMING OUR WAY OVER THE NEXT SEVERAL DECADES, A GREAT NUMBER WILL BE DIRECTLY APPLICABLE TOWARD IMPROVING THE LEVEL OF HOME OR FAMILY-CENTERED CARE FOR OUR INFIRM ELDERLY.

THAT'S A VERY AWESOME DEMOGRAPHIC PROJECTION AND, TO TELL THE TRUTH, I WISH I COULD STOP RIGHT HERE. BUT I CAN'T. THE FACT OF THE MATTER IS THAT THE "GRAYING OF AMERICA," AS SIGNIFICANT AS IT MAY BE, IS ONLY HALF THE STORY.

THIS AGING "BABY BOOM" GENERATION IS BEGINNING TO HAVE BABIES OF ITS OWN. TO BE MORE PRECICE, THE THE UNITED STATES IS EXPERIENCING WHAT IS CALLED AN "ECHO EFFECT." LET ME EXPLAIN HOW THAT WORKS.

THE FERTILITY RATE IN 1980 AMONG "BABY BOOM" WOMEN -- THAT IS, CHILD-BEARING WOMEN IN THEIR TWENTIES AND THIRTIES -- WAS 68.4, OUR MOST CURRENT STATISTIC. THE RATE FOR THEIR MOTHERS, THE CHILD-BEARING WOMEN IN THE 1950s AND EARLY 60s, HIT A RECORD HIGH OF 122.7 IN 1957, NEARLY TWICE THE CURRENT FERTILITY RATE.

BUT WHILE THAT EARLIER GENERATION HAD, IN 1957, ABOUT 4.3 MILLION LIVE BIRTHS, THE WOMEN IN 1980 HAD 3.6 MILLION LIVE BIRTHS -- OR ONLY 16 PERCENT FEWER LIVE BIRTHS THAN THEIR MOTHERS' GENERATION, AT HALF THE FERTILITY RATE.

LET ME PUT IT ANOTHER WAY: IF THE UNITED STATES FERTILITY RATE WERE THE SAME TODAY AS IT WAS 25 YEARS AGO, THEN, INSTEAD OF 3.6 MILLION BABIES BORN THIS YEAR, WE WOULD HAVE SOMETHING LIKE 7 MILLION BABIES, NEARLY TWICE THE NUMBER BORN IN OUR ALL-TIME "BABY BOOM" YEAR.

BUT THERE IS MUCH MORE TO THIS DEMOGRAPHIC PICTURE THAN MERE NUMBERS OF WOMEN AT CHILD-BEARING AGE. THERE IS ANOTHER VERY IMPORTANT FACTOR: MORE OF TODAY'S BABIES ARE SURVIVING.

FOR COMPARISON, LET'S LOOK BACK AGAIN AT THE BOOM YEAR OF 1957. IN THAT YEAR, THERE WERE 26 INFANT DEATHS FOR EVERY 1,000 LIVE BIRTHS. OUR LATEST ESTIMATE FOR LAST YEAR -- 1982 -- IS A RATE OF 11.2 INFANT DEATHS FOR EVERY 1,000 LIVE BIRTHS. SO IN JUST ONE GENERATION, WE REDUCED THE INFANT MORTALITY RATE IN THE UNITED STATES BY MORE THAN HALF.

DURING THIS SAME PERIOD, BY THE WAY, WE ALSO REDUCED THE DEATH RATE FOR CHILDREN AGES 1 THROUGH 14 BY NEARLY HALF. THAT'S WHY I BELIEVE WE CAN DRAW ONLY ONE CONCLUSION FROM ALL THIS: WE MAY BE IN THE MIDST OF YET ANOTHER -- AND ONLY SLIGHTLY LESS DRAMATIC -- "BABY BOOM."

WHAT DOES ALL THIS MEAN FOR PERSONS SUCH AS OURSELVES, PEOPLE WHO ACTUALLY DELIVER HEALTH AND MEDICAL CARE TO INDIVIDUALS AND FAMILIES. IT'S MY BEST GUESS THAT, OVER THE NEXT 25 YEARS OR SO, WE ARE GOING TO HAVE THE UNUSUAL TASK OF PROVIDING QUALITY GERIATRIC AND QUALITY PEDIATRIC HEALTH CARE AT THE SAME TIME.

WILL THIS COUNTRY BE ABLE TO DO IT? I THINK SO. BUT I'M NOT AT ALL SURE HOW WE WILL DO IT. WE HAVE NO EXPERIENCE FOR SUCH AN HISTORIC SET OF CIRCUMSTANCES. AND WE CAN'T LEARN FROM ANYBODY, SINCE NO OTHER COUNTRY HAS HAD THAT KIND OF EXPERIENCE EITHER.

IF WE HAVE ANY MAJOR HURDLES TO OVERCOME, THEY WOULD BE THE HURDLES OF TOO LITTLE TIME AND NOT ENOUGH MONEY. AND I GUESS EVERYONE HERE THIS MORNING HAS HEARD THAT ONE BEFORE. BUT THE PRESSURES THIS TIME ARE SOMEWHAT UNIQUE. YOU CAN'T "FINE TUNE" DEMOGRAPHY. IT'S TOTALLY BEYOND OUR CONTROL.

WHEN OTHER ISSUES HAVE COME BEFORE US IN THE PAST, WE'VE USUALLY HAD AT LEAST A FEW YEARS TO MAKE SOME ADJUSTMENTS. BUT WE SIMPLY DON'T HAVE THE LUXURY OF TIME ANYMORE. I'D SAY WE HAVE A DECADE OR TWO -- AT BEST -- TO PREPARE OUR PHYSICIANS AND NURSES, OUR DENTISTS AND THERAPISTS, OUR TECHNICIANS, ADMINISTRATORS, TRUSTEES, AND SOCIAL SERVICE WORKERS TO DEAL WITH A NATION WITH MANY MILLIONS OF THE AGED AND MANY MILLIONS OF CHILDREN -- AND A LOT OF OTHER PEOPLE OF ALL AGES SCATTERED IN BETWEEN.

OF COURSE, THE REST OF THE COUNTRY WILL NOT BE SITTING STILL, WAITING FOR MEDICINE TO CATCH UP. WE CAN PREDICT THAT BECAUSE WE KNOW THAT TODAY MANY MAGAZINE READERS AND T.V. WATCHERS ARE ABOUT AS WELL INFORMED ON SOME HEALTH MATTERS AS THEIR FAMILY PHYSICIANS. AND THAT KIND OF TREND WILL CERTAINLY CONTINUE.

THE "BABY BOOM" GENERATION -- AS IT BEGINS TO REALLY SHOW ITS AGE AT THE TURN OF THE CENTURY -- WILL BE MORE KNOWLEDGEABLE ABOUT HEALTH THAN YESTERDAY'S OR EVEN TODAY'S SENIOR CITIZENS. AS I MENTIONED EARLIER, THE MEMBERS OF THE "BABY BOOM" GENERATION ARE NOW IN THEIR PRIME, LIVING THEIR MOST PRODUCTIVE, ACTIVE, AND INQUISITIVE YEARS. THEY ARE A BETTER EDUCATED GENERATION, AND -- RECENT CRITICISMS NOTWITHSTANDING -- THEY HAVE A REASONABLY GOOD WORKING GRASP OF SCIENCE AND THE SCIENTIFIC METHOD. FRANKLY, IF THEY DID NOT, THEN YOU COULD NOT SELL ONE SINGLE HOME COMPUTER.

I BELIEVE THE KEY TO OUR ABILITY TO RESPOND TO THE PUBLIC'S NEED FOR BETTER CONTEMPORARY HEALTH CARE IS TO BE FOUND IN OUR RESEARCH PROGRAMS. THE MORE WE IMPROVE OUR UNDERSTANDING OF THE THINGS WE KNOW, THE MORE WE REALIZE JUST HOW MUCH WE DON'T KNOW AT ALL.

HENCE, THE MORE WE LEARN ABOUT THE HEALTH AND MEDICAL NEEDS OF THE ELDERLY, THE MORE WE REALIZE THAT WE STILL HAVE A GREAT DEAL MORE TO LEARN -- AND AS SOON AS POSSIBLE. IF THERE IS IS A CONSENSUS ON THIS MATTER SO FAR, I TEND TO THINK IT REVOLVES AROUND THE IDEA THAT RESEARCH -- PARTICULARLY BASIC BIOMEDICAL AND BEHAVIORAL RESEARCH -- IS ONE OF THE MAJOR PRIORITIES OF GOVERNMENT IN THE TASK OF GEARING UP FOR THE FUTURE.

AT THE PRESENT TIME, THE FEDERAL GOVERNMENT CONTRIBUTES ABOUT 60 PERCENT OF ALL MONEY FOR BIOMEDICAL AND BEHAVIORAL RESEARCH...AND THAT INCLUDES BASIC RESEARCH, APPLIED RESEARCH, AND DEVELOPMENT. LAST YEAR, THE FEDERAL TOTAL CAME TO JUST UNDER $5 BILLION DOLLARS. OF THAT AMOUNT, OVER TWO-THIRDS SUPPORTS BASIC RESEARCH. WHAT KIND OF RESEARCH DOES THIS MONEY BUY AND WILL ANY OF IT HELP US PROVIDE BETTER HEALTH SERVICE TO THE NEW AMERICAN DEMOGRAPHY? I THINK SO. FOR EXAMPLE...:

* WE ARE COMMITTED TO LONG-TERM INQUIRIES INTO THE NATURE OF THE AGING PROCESS.

* BOTH THE NATIONAL INSTITUTES OF HEALTH AND THE CENTERS FOR DISEASE CONTROL HAVE PROJECTS THAT EXPLORE THE ETIOLOGY OF BIRTH DEFECTS.

* VIRTUALLY EVERY ONE OF THE NATIONAL INSTITUTES HAS SOME PROJECT DIRECTED AT YIELDING MORE INFORMATION ABOUT LIFE AT THE CELLULAR AND SUB-CELLULAR LEVEL.

* WE ARE GATHERING A GREAT DEAL OF INFORMATION ABOUT THE IMPACT OF ENVIRONMENTAL HAZARDS, RE-EVALUATING SOME THAT ARE FAMILIAR TO US AND TAKING A NEW LOOK AT SOME THAT ARE JUST BEGINNING TO APPEAR -- OR ARE THREATENING TO APPEAR.

* AND THEN THERE ARE THE AREAS IN WHICH MUCH WORK HAS BEEN DONE, WITH A GREAT DEAL MORE STILL TO DO. THESE AREAS WOULD INCLUDE CYSTIC FIBROSIS, OSTEOARTHRITIS, DIABETES, THE CAUSES OF PREMATURE BIRTHS, AND, OF COURSE, THE MAJOR KILLERS -- HEART DISEASE, CANCER, AND STROKE.

THAT IS A VERY EXCITING LIST OF THE KINDS OF RESEARCH PROJECTS WE ARE SUPPORTING PRIMARILY THROUGH THE NATIONAL INSTITUTES OF HEALTH, THE CENTERS OF DISEASE CONTROL, AND THE ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION. BUT WILL IT HAVE BEEN THE RIGHT LIST FOR OUR SOCIETY 20 YEARS FROM NOW?

IF WE WERE TO LAY OUT OUR RESEARCH PRIORITIES...NOW...TODAY...WITH OUR EYES LOOKING FAR INTO THE FUTURE, WHAT KIND OF PRIORITIES WOULD WE CHOOSE?:

--- OUGHT WE TO CONTINUE TO RACE DOWN THE ROAD OF THE GENETIC ENGINEERS, OR SHOULD WE REALLY BE INVESTING PRIMARILY IN VIROLOGY AND IMMUNOLOGY, IN ANTICIPATION OF PRODUCING A CLUTCH OF NEW VACCINES?

--- SHOULD OUR FOCUS BE PRIMARILY ON RESEARCH OF THE HUMAN AGING PROCESS, OR SHOULD WE FOCUS INSTEAD ON THE MANY MYSTERIES OF PREGNANCY AND LABOR?

--- OUGHT WE TO EXPEND MOST OF OUR EFFORTS ON THE MAJOR CAUSES OF DEATH IN OUR SOCIETY -- HEART DISEASE, CANCER, AND STROKE -- OR SHOULD WE SHIFT MORE ATTENTION AND RESOURCES TO SUCH RARE BUT PERSISTENT DISEASES AS MYOCLONUS OR WILSON'S DISEASE OR TOURETTE'S SYNDROME OR NEPHROPATHIC CYSTINOSIS...THE SO-CALLED "ORPHAN DISEASES"?

--- THEN AGAIN, MAYBE WE SHOULD INCREASE OUR EFFORTS WHERE THERE IS A HINT OF AN IMMINENT PAY-OFF, INSTEAD OF INVESTING HEAVILY IN THE TOUGHER, MORE PUZZLING, LONG-TERM INVESTIGATIONS.

--- AND FINALLY, SHOULD WE CONTINUE TO CONCENTRATE OUR FUNDS SO HEAVILY IN THE BIO<u>MEDICAL</u> AREA, OR SHOULD WE MOVE MORE AGGRESSIVELY INTO THE BIO<u>BEHAVIORAL</u> AREA -- TO HELP PEOPLE STOP SMOKING AND ABUSING ALCOHOL AND DRUGS AND GET THEM TO EAT BETTER AND MANAGE THEIR STRESS BETTER?

CHOICES...CHOICES...CHOICES. AS CONFOUNDING AS SOME OF THEM MAY BE, THEY MUST BE UNDERSTOOD AND WEIGHED. ULTIMATELY, WE MUST MAKE A CHOICE -- AND IT SHOULD BE THE BEST ONE...THE RIGHT ONE...THE NECESSARY ONE FOR OUR COUNTRY AND FOR MANKIND. I MUST SAY THAT WE'VE BEEN DOING QUITE WELL IN MAKING OUR RESEARCH CHOICES SO FAR...BUT I CANNOT TELL YOU WHY. IT'S AS MUCH A MYSTERY AS THE INITIATION OF LABOR AND BIRTH.

THESE ARE NOT IDLE QUESTIONS. EVERYONE HERE THIS MORNING HAS A STAKE IN THE ANSWERS. YOU CAN'T BE IDENTIFIED WITH SUCH A FINE INSTITUTION AS THE BAYLOR UNIVERSITY MEDICAL CENTER -- WITH ITS FINE REPUTATION FOR QUALITY RESEARCH AND PATIENT CARE -- AND NOT ALSO FEEL THE TENSION BETWEEN THOSE TWO WORLDS OF MEDICINE: RESEARCH AND PATIENT CARE. AND YOU CAN'T BUT NOTICE THAT THE TENSION SOMEHOW HAS TO DO WITH OUR OWN ASSESSMENTS OF THE COUNTRY'S FUTURE NEEDS.

I THINK THE TWO WORLDS OF MEDICINE -- OF RESEARCH AND OF PRACTICE -- NEED TO BUILD BETTER BRIDGES OF COMMUNICATION SO THAT THE NEW KNOWLEDGE DEVELOPED BY ONE CAN BE QUICKLY ADAPTED TO THE PRACTICE OF THE OTHER. AND CONVERSELY, THE INFORMATION DRAWN FROM THE PRACTICE OF ONE MAY INFLUENCE THE DIRECTION OF INVESTIGATIONS TAKEN BY THE OTHER.

MAYBE I HAVE A PREJUDICE OR TWO THAT FAVORS THE PRACTITIONER... I'M SURE I DO...AND I SUPPOSE I FEEL A CERTAIN KINSHIP AND SYMPATHY FOR THE PRESSURES OF A DAY-TO-DAY MEDICAL PRACTICE. FOR THE BUSY PRACTITIONER, KEEPING UP WITH THE WORLD OF RESEARCH IS JUST A VERY HARD THING TO DO.

FOR THE PRACTICING PHYSICIAN, TIME IS A VERY PRECIOUS COMMODITY. THEREFORE, KEEPING UP-TO-DATE ON RESEARCH MAY BE MORE EASILY SAID THAN DONE. BUT MANY EXAMPLES OF ROUTINE COMMUNICATION WITHIN THE MEDICAL PROFESSION CAN ALL BE HELPFUL IN DELIVERING NEW INFORMATION THAT'S EASILY AND QUICKLY INGESTED.

EACH PHYSICIAN HAS TO SET PRIORITIES FOR SPENDING TIME, AND I WOULD HOPE THAT BEING CURRENT ON NEW DEVELOPMENTS IN THE BIOMEDICAL AND BEHAVIORAL SCIENCES WOULD RATE HIGH ON ANY PHYSICIAN'S LIST OF PRIORITIES.

BUT JUST BEING UP-TO-DATE IS NOT ENOUGH EITHER. IT IS ALSO IMPORTANT FOR THE PRACTITIONER TO MAKE THAT VITAL CONNECTION BETWEEN RESEARCH AND MEDICAL PRACTICE...OR, EVEN MORE TO THE POINT, TO MAKE THE CONNECTION BETWEEN RESEARCH AND WHAT HE OR SHE WANTS MEDICAL PRACTICE TO BE.

HEALTH CARE OF EVERY KIND AND DEGREE IS CHANGED AND, WE HOPE, IMPROVED OVER THE YEARS AS IT ABSORBS AND APPLIES THE LESSONS LEARNED IN THE LABORATORY, THE TEACHING HOSPITAL, AND ELSEWHERE IN THE RESEARCH

ENVIRONMENT. IF WE CARE AT ALL FOR THE FUTURE OF OUR PROFESSION, THEN WE HAVE TO CARE ABOUT THE RESULTS OF RESEARCH AND HOW THEY ARE PERCEIVED THROUGH THE PRACTITIONER'S LENS OF DAY-TO-DAY PATIENT CARE.

THIS MAY OR MAY NOT BE EASY TO DO. SOMETIMES IT'S DIFFICULT TO PREDICT WITH ANY ACCURACY WHAT THE ULTIMATE VALUE OF SOME PIECE OF RESEARCH WILL BE. FOR EXAMPLE, WE'RE STILL OPEN TO WHAT THE FUTURE ROLE OF INTERFERON MAY BE. RECOMBINANT D.N.A., MONOCLONAL HYBRIDOMAS, AND NEUROTRANSMITTERS MAY BE THE ANSWERS TO ANY NUMBER OF PRAYERS. OR THEY MAY NOT.

BUT EACH OF THESE NEW TECHNOLOGIES, THE MANY HUNDREDS MORE IN THE MAKING, AND THOSE THAT ARE IN COMMON PRACTICE TODAY -- THEY ALL NEED TO BE CAREFULLY EVALUATED AND ASSESSED BY A RESPONSIBLE MEDICAL PROFESSION.

THESE QUESTIONS ARE EXTREMELY DIFFICULT AND REQUIRE THE BEST THINKING AVAILABLE IN THE SCIENTIFIC AND MEDICAL COMMUNITY TO HELP SOCIETY FIND THE BEST ANSWERS. SUCH QUESTIONS AS THESE TEST OUR ABILITY TO WEIGH EVIDENCE, BALANCE INTERESTS, AND MAKE JUDGMENTS. IN THAT SENSE, THEN, THE ANSWERS MAY LEAD US TO AN UNDERSTANDING OF WHAT

NEEDS TO BE CONSIDERED AND DECIDED TODAY...AND WHAT CAN SAFELY BE CONSIDERED TOMORROW. THEY RAISE IN US THE HOPE THAT IT MIGHT BE POSSIBLE AFTER ALL -- AND WITHOUT WEAKENING THE TRADITION OF FREEDOM OF INQUIRY -- TO IMPOSE A SENSE OF ORDER AND STABILITY UPON WHAT OTHERWISE SEEMS TO BE AN UNCERTAIN STATE OF AFFAIRS IN SCIENCE.

IT WOULD SEEM TO ME, THEN, THAT ONE OF THE SERIOUS TASKS AHEAD FOR THE MODERN PRACTITIONER WOULD BE TO PLAY AN INFORMED AND ACTIVE ROLE IN THE PRIORITY-SETTING PROCESSES IN MEDICINE AND RESEARCH.

WE KNOW THE COUNTRY DOES NOT HAVE UNLIMITED RESOURCES TO FOLLOW ANY PATH OF RESEARCH OR PRACTICE THAT MAY CAPTURE OUR IMAGINATION. WE ALL NEED TO HAVE A NEW SENSE OF DISCIPLINE IN THESE MATTERS, A PROSPECT THAT I CONFESS TO FIND QUITE REFRESHING. BUT I MUST WARN THE INNOCENTS AMONG YOU: WE HAVE NO SHORTAGES AT ALL OF INTEREST GROUPS WHO ARE ALREADY INVOLVED IN THE PRIORITY-SETTING PROCESSES FOR BIOMEDICAL AND BEHAVIORAL RESEARCH.

THE ACADEMIC COMMUNITY IS ONE, OF COURSE. ITS INTEREST IS TWO-FOLD: RESEARCH AND EDUCATION CROSS-POLLINATE AND EACH IMPACTS ON THE OTHER'S USE OF AVAILABLE HUMAN, PHYSICAL, AND FINANCIAL RESOURCES.

ALSO CONTRIBUTING TO THE RESEARCH DIALOGUE ARE A NUMBER OF MAJOR INDUSTRIES, SUCH AS THE DRUG AND DEVICE INDUSTRIES, THE PRODUCERS OF MEDICAL INSTRUMENTATION, AND THE INVESTMENT COMMUNITY. AND LET'S NOT LEAVE OUT GOVERNMENT -- FEDERAL AND STATE GOVERNMENT IN PARTICULAR -- WHOSE VIEWS ARE ALWAYS KNOWN AND FELT.

SO FAR, PRACTICING PHYSICIANS HAVE NOT BEEN VERY VISIBLE OR PERSUASIVE IN THE BUSINESS OF SETTING RESEARCH PRIORITIES. IT'S POSSIBLE THAT PHYSICIANS ARE SO GRATEFUL FOR THE RESULTS THAT RESEARCH HAS ALREADY PROVIDED THAT THEY'D JUST AS SOON LET THIS "NATURAL" PROCESS CONTINUE.

BUT SUCH A PASSIVE ROLE IS NOT ENOUGH. THROUGH OPEN DISCUSSION, THROUGH PROFESSIONAL ORGANIZATIONS, AND THROUGH OTHER MECHANISMS I THINK THE PRACTICING PHYSICIAN HAS TO TRANSLATE HIS OR HER UNDERSTANDING OF THE NEW SCIENCE AND ITS RAMIFICATIONS FOR MEDICAL PRACTICE INTO SOME RANK ORDER. THEN THOSE CONCLUSIONS OR JUDGMENTS OUGHT TO BE RELAYED BACK TO THE WORLD OF RESEARCH.

THAT KIND OF ACTIVITY WOULD BE A REMINDER -- AND A VERY POWERFUL ONE, IN MY JUDGMENT -- FOR THE RESEARCH COMMUNITY. IT WOULD CLEARLY UNDERSCORE THE NOTION THAT RESEARCH AND PRACTICE ARE NOT TWO SEPARATE ACTIVITIES IN SOCIETY. RATHER, THEY ARE A CONTINUUM OF ONE SINGLE ACTIVITY: THE PURSUIT OF KNOWLEDGE FOR THE BENEFIT OF MANKIND.

THIS MAY SOUND LIKE A SIMPLE, STRAIGHTFORWARD THING TO DO. BUT IT REALLY ISN'T. SETTING RESEARCH PRIORITIES CAN BE A COMPLEX AND OFTEN FRUSTRATING TASK, PARTICULARLY FOR A SOCIETY AS DIVERSE AS OURS, WHICH HAS A GREAT RANGE OF PERSONAL, FAMILY, AND COMMUNITY NEEDS, AND WHICH IS EVOLVING DEMOGRAPHICALLY INTO A SIGNIFICANTLY DIFFERENT SOCIETY OVER THE COURSE OF ONE GENERATION.

CONSIDER THIS QUESTION, AS AN EXAMPLE. THE PUBLIC HEALTH SERVICE SPENDS IN ONE YEAR NEARLY $5 BILLION IN HEALTH RESEARCH FUNDS. MOST OF THAT MONEY IS INVESTED IN AND THROUGH N.I.H., C.D.C., AND THE OTHER AGENCIES I MENTIONED A FEW MOMENTS AGO. THESE AGENCIES, IN TURN, TEND TO INVEST HEAVILY IN FAIRLY TRADITIONAL AREAS. HEART DISEASE, CANCER, AND STROKE RESEARCH, FOR EXAMPLE, OR INFECTIOUS DISEASE RESEARCH.

HOWEVER, LATELY WE HAVE BEEN HEARING THE VOICES OF PEOPLE WITH RARE DISEASES ASKING, "WHAT ABOUT US? WE'RE ALSO SUFFERING. WE ALSO NEED HELP." WHAT SHOULD OUR RESPONSE BE? AND HOW SHOULD WE INCLUDE IT INTO OUR OVERALL RESEARCH PLANNING? FOR INSTANCE, SHOULD WE SOMEHOW STRIKE A BALANCE BETWEEN HEART DISEASE AND ADRENAL FUNCTION SUPPRESSION IN CUSHING'S SYNDROME? WHAT WOULD OUR PRIORITIES LOOK LIKE THEN?

THESE KINDS OF QUESTIONS REQUIRE A GREAT MANY THOUGHTFUL CONTRIBUTIONS FROM THROUGHOUT THE MEDICAL COMMUNITY AND FROM SOCIETY IN GENERAL. I KNOW WHEN I SAY THAT, IT SOUNDS THREATENING TO MANY PHYSICIANS. I WISH THAT WERE NOT THE CASE...BUT I KNOW IT IS. NEVERTHELESS, THE KINDS OF ISSUES I HAVE RAISED SO FAR -- ISSUES RELATED TO THE DEMOGRAPHIC ENVIRONMENT AND THE RESEACH ENVIROMENT IN WHICH MEDICINE IS PRACTICED TODAY AND WILL BE PRACTICED TOMORROW -- THESE ARE ISSUES THAT CANNOT BE FULLY RESOLVED WITHOUT THE "INFORMED CONSENT" OF THE AMERICAN PEOPLE.

AS THE LINK BETWEEN THE WORLD OF RESEARCH AND THE WORLD OF BEDSIDE CARE, THE PHYSICIAN HAS TO MOVE BEYOND JUST THE DISEASE OR DISABILITY OF THE MOMENT, THE PARTICULAR COMPLAINT THAT BRINGS TOGETHER THE

PHYSICIAN AND THE PATIENT. THAT'S IMPORTANT, TO BE SURE. THAT'S "INFORMED CONSENT" FOR THE IMMEDIATE BUSINESS AT HAND. BUT WE MUST KEEP IN MIND THAT BIOMEDICAL AND BEHAVIORAL RESEARCHERS ALSO NEED THE PUBLIC'S "INFORMED CONSENT" OVER THE LONG RUN.

OUR PATIENTS -- THE GENERAL PUBLIC -- MUST CONSENT TO THE EXPENDITURE OF RESOURCES...TO THE SETTING OF A RESEARCH AGENDA...MUST GIVE SOME ASSISTANCE IN RESOLVING THE GREAT ETHICAL ISSUES OF CONTEMPORARY RESEARCH...AND THEY MUST PROVIDE SUPPORT IN OTHER AREAS AS WELL. WITHOUT THIS CONSENT OF THE GENERAL PUBLIC, RESEARCH IS HOBBLED AND HELD IN SUSPICION.

WORST OF ALL, WITHOUT STRONG PUBLIC UNDERSTANDING AND SUPPORT, MEDICAL RESEARCH IS CONDUCTED IN A VACUUM, A SITUATION THAT OFFERS THE RESEARCHER SMALL HOPE OF SUCCESS.

PEOPLE WANT TO KNOW WHAT'S GOING ON IN RESEARCH...WHAT'S IN THE PIPELINE THAT'S NEW AND SIGNIFICANT...WHAT MEDICAL CARE MAY BE LIKE IN THE FUTURE FOR THEMSELVES AND THEIR FAMILIES. BASICALLY, IT'S THE SAME

CURIOSITY THAT PHYSICIANS THEMSELVES HAVE AND IT OUGHT TO BE SATISFIED FOR THE SAME REASONS: TO BUILD UNDERSTANDING, TO MAINTAIN TRUST, AND TO PROVIDE SUPPORT WHEN NEEDED.

I BELIEVE THIS CONSTELLATION OF TASKS AND RELATIONSHIPS WOULD BRING THE PRACTITIONER CLOSER TO THE WORLD OF RESEARCH, PROVIDING ADDITIONAL INSIGHTS INTO THE FUTURE OF MEDICAL PRACTICE. WE NEED THAT KIND OF INSIGHT AS MUCH AS WE NEED THE IMPORTANT BIOMEDICAL AND BEHAVIORAL RESEARCH THAT IS ITS INSPIRATION.

CERTAINLY THESE ARE VERY EXCITING AS WELL AS VERY COMPLEX TIMES IN WHICH TO BE PRACTICING MEDICINE, DOING RESEARCH, RAISING A FAMILY, OR JUST WATCHING SUNRISES AND SUNSETS. WE KNOW SO MUCH MORE WITH EACH PASSING DAY THAT, SOONER OR LATER, WE SENSE THE GREAT BURDEN OF KNOWLEDGE AND -- IF WE ARE RESPONSIBLE -- WE TRY TO MAKE THAT BURDEN MORE MANAGEABLE. WE KNOW, OF COURSE, THAT IT NEVER WILL BE COMPLETELY COMFORTABLE, BUT WE DON'T LET THAT BOTHER US.

A WHILE BACK, DR. ERWIN CHARGAFF, ONE OF THE PIONEERS IN HEREDITY RESEARCH AND GENETIC CHEMISTRY, WROTE, "THE GREATER THE CIRCLE OF UNDERSTANDING BECOMES, THE GREATER IS THE CIRCUMFERENCE OF SURROUNDING IGNORANCE." THAT'S A SOBERING IDEA. BUT WE MUST TAKE HEART. THERE ARE STILL MANY WAYS TO EXPAND THAT CIRCLE...TO PUSH OUT EVEN FARTHER THAT "CIRCUMFERENCE OF IGNORANCE." AND CERTAINLY THE PHYSICIAN WE HONOR IN THIS SERIES OF LECTURES, DR. JOHN WARNER DUCKETT, WAS ONE OF THOSE WHO DID JUST THAT IN HIS PERSONAL AND PROFESSIONAL LIFE.

YOU'VE BEEN A MOST ATTENTIVE AND EXCELLENT AUDIENCE. THANK YOU.

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