The Right Testing, the Right Treatment, at the Right Time: Stewardship of Medical Resources by the Ethical Health Care Provider

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Financial Disclosure

Ian, M. Thompson, Jr, MD, has no relevant financial relationships with commercial interests to disclose.

Learning Objectives

The attendee will:

1 – describe the extent of overuse of medical testing and treatment in the U.S.
2 – list the detrimental impact of overtesting and overtreatment for patients and for society.
3 – describe the overarching methods to reduce overtesting and overtreatment and where sources can be found to help guide medical decision-making.

Overarching concept

The United States spends an enormous amount of our available resources on healthcare.

The question is whether we receive value from our investment.

Although all of us in the room have a very clear conflict of interest (most of us are paid for our healthcare work), we must acknowledge that those $'s are the treasures of our children and grandchildren.

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Value should always be defined around the customer, and in a well-functioning health care system, the creation of value for patients should determine the rewards for all other actors in the system. Since value depends on results, not inputs, value in health care is measured by the outcomes achieved, not the volume of services delivered.
The Take-Home Message

We are responsible for using our health care resources wisely.

A major component in the use of these resources is our use of diagnostic tests and in selection of treatment modalities.

Why might physicians ‘overtest’?

• Belief that ordering many tests will help detect subclinical (less-than-evident) disease
• Defensive medicine (malpractice risk)
• Lack of knowledge, experience, or confidence
• Patient expectations
• Profit

What is the risk of overdoing lab testing?

• It’s only 3-5% of total healthcare spending
  – That’s $90.150 billion per year
  – That’s $285.69 - $476.15 per person per year
• However, the true cost are the ‘downstream costs and side effects’ including
  – Prescriptions
  – Imaging tests
  – Surgeries
  – Hospitalizations

Examples of Overuse of testing

Let’s examine some trends and examples of this problem in American Medicine
Use of Diagnostic Imaging Studies and Associated Radiation Exposure for Patients Enrolled in Large Integrated Health Care Systems, 1996-2010

Rebecca Smith-Bindman, MD
Emma L. Miglioretti, PhD
Eric Johnson, MD

Context: Use of diagnostic imaging has increased significantly within the various sectors of care. Little is known about patterns of imaging among members of integrated health care systems.

Figure 1. Imaging Examinations by Modality and Year, Adjusted to a Standard Age Distribution Across Sites and Years

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Overutilization of diagnostic tests in Urology

- Maintenance of Certification in Urology involves a group of processes
- One of those processes involves submission of a 6-month log (snapshot) of all billed encounters
How overtesting can lead to overtreatment

- An essential element in good medical practice today is an understanding of how diagnostic testing may lead to changes in medical care that are not necessarily in the patient's best interest.
- Illustrates why it is so important for physicians to understand the disease and the performance of diagnostic tests.
Overtreatment vs. Undertreatment

By comparison, survival of advanced prostate cancer

A total of 1,298 men (median age, 66 years) with a median follow-up of 5 years (range, 0.01 to 18.00 years) contributed 6,780 person-years of follow-up since 1995. Overall, cancer-specific and metastasis-free survival rates were 95%, 99.9%, and 99.9%, respectively, at 10 years and 99%, 99.5%, and 99.4%, respectively, at 15 years. The cumulative incidence of grade reclassification was 26% at 10 years and was 31% at 15 years; cumulative incidence of cT classification was 50% at 10 years and was 5.7% at 15 years. The median treatment-free survival was 8.5 years (range, 0.01 to 18 years). Factors associated with grade reclassification were older age (hazard ratio [HR], 1.03 for each additional year; 95% CI, 1.01 to 1.05), prostate-specific antigen density (HR, 1.21 per 0.1 unit increase; 95% CI, 1.12 to 1.40), and greater number of positive biopsy cores (HR, 1.47 for each additional positive core; 95% CI, 1.20 to 1.80). Factors associated with intervention were prostate-specific antigen density (HR, 1.38 per 0.1 unit increase; 95% CI, 1.22 to 1.56) and a greater number of positive biopsy cores (HR, 1.35 for one additional positive core; 95% CI, 1.19 to 1.53).
Let’s take a typical patient case

- 72 yo man with PSA of 4.1 ng/mL
- Undergoes biopsy
- 1/12 biopsy cores has < 5% Gleason 3+3
- The patient comes to see me – I tell him that there is no difference between surgery, radiation, and surveillance (watchful waiting) for his cancer.

He goes to a well-meaning other physician

- His family is concerned: they say “Dad has cancer and his physician is telling him that it doesn’t need to be treated”
- The physician orders the test to “See if it is truly an aggressive tumor”

Test cost = $3,820.
So, the moment we make the diagnosis...

- We know that with surveillance, deferring treatment until and unless his tumor becomes more aggressive, his risk of prostate cancer death is 1% or less

- So, we know that his risk profile looks like this

Likelihood our patient will be “OK” with surveillance - 99%

Likelihood our patient will develop cancer progression with surveillance – 1%

Then question then is, what is the performance of the test?

- Let’s assume that the test performs amazingly-well.

- It has a 90% sensitivity for detection of high risk cancers

- It has a 90% specificity for detection of high risk cancers.
What does that *specificity* mean?

- It means that in 90% of the patients without the problem (in this case, the risk of disease progressing), the test will be correct.

- It also means that you’ll ‘label’ 10% of patients falsely-positive.

- In this case, you’ll treat 10% unnecessarily.

How an understanding of probability of your test results determines the test usefulness

<table>
<thead>
<tr>
<th>Disease is:</th>
<th>Present</th>
<th>Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test is:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

And you *might* find this man early.
How an understanding of probability of your test results determines the test usefulness

<table>
<thead>
<tr>
<th>Disease is:</th>
<th>Present</th>
<th>Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal</td>
<td>True Positive</td>
<td>False Positive</td>
</tr>
<tr>
<td>Normal</td>
<td>False Negative</td>
<td>True Negative</td>
</tr>
</tbody>
</table>

So, for a Gleason 3+3 tumor, PSA < 10

<table>
<thead>
<tr>
<th>Disease is:</th>
<th>Present</th>
<th>Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal (including F+)</td>
<td>False Positive</td>
<td>True Negative</td>
</tr>
</tbody>
</table>

These men, you will improperly recommend hormonal therapy. Won’t cure them. Will harm them: side effects.

Now, let’s address Over-treatment

Why might physicians ‘overtreat’?

- Belief that treatment may help the patient
  - Reduce the risk of death or complications from the disease
  - Reduce the risk of disease progression and need for more intensive/expensive/morbid complications
- Defensive medicine (malpractice risk)
- Lack of knowledge, experience, or confidence
- Patient expectations
- Profit

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What is the risk of overtreatment?

• It’s the majority of the total cost of healthcare in the United States
• **If the treatment will not benefit the patient, the risks include:**
  - Cost of treatment
  - Side effects of treatment
  - Time away from work
  - Reduced quality of life
  - Cost and sequelae of treatment of complications of treatment

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**Doctors Who Profit From Radiation Prescribe It More Often, Study Finds**

WASHINGTON — Doctors who have a financial interest in radiation treatment centers are much more likely to prescribe such treatments for patients with prostate cancer, Congressional investigators say in a new report.

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**HEALTH**

**Higher Use of Costly Prostate Cancer Treatment by Providers Who Self-Refer Warrants Scrutiny**

<table>
<thead>
<tr>
<th>Type of provider</th>
<th>Percentage of providers’ patients referred for IMRT among beneficiaries diagnosed in 2007</th>
<th>Percentage of providers’ patients referred for IMRT among beneficiaries diagnosed in 2009</th>
<th>Percentage change from 2007 to 2009</th>
<th>Percentage more or less likely providers were to refer patients for IMRT in 2009 compared to 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switchers</td>
<td>37.0%</td>
<td>54.2%</td>
<td>17.2</td>
<td>45.0%</td>
</tr>
<tr>
<td>Non-self-referrers</td>
<td>31.4</td>
<td>33.1</td>
<td>1.7</td>
<td>5.5</td>
</tr>
<tr>
<td>Self-referrers</td>
<td>56.7</td>
<td>52.9</td>
<td>-2.8</td>
<td>-6.1</td>
</tr>
</tbody>
</table>

Source: GAO analysis of CMS data.

(EIMRT) commonly used to treat prostate cancer. While there are multiple effective treatments for prostate cancer, IMRT is one of the most costly options. In 2019, expenditures for prostate cancer-related IMRT services accounted for about 55 percent of the $1.27 billion that Medicare paid for all IMRT services under Medicare Part B.

studied. One recent study found that, among men diagnosed with prostate cancer in 2005, the cost to Medicare per course of treatment was approximately $14,000 to $15,000 higher for men receiving IMRT ($31,574) than for men who received brachytherapy ($17,076) or a prostatectomy ($18,469 or $18,762, depending on the type of prostatectomy). Despite the 2013 reduction in the Medicare reimbursement rate for IMRT delivery services performed in physician offices, we found that IMRT remains substantially more expensive than other treatments for prostate cancer, with the exception of proton therapy.
Proton therapy for Prostate Cancer

Self-Referring Providers Were 53 Percent More Likely to Refer Their Prostate Cancer Patients for IMRT than Non-Referring Providers

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ASTRO releases list of five radiation oncology treatments to question as part of national Choosing Wisely® campaign

Atlanta, September 23, 2013 – The American Society for Radiation Oncology (ASTRO) today released its list of five radiation oncology-specific treatments that are commonly ordered but may not always be appropriate as part of the national Choosing Wisely® campaign, an initiative of the ABNM Foundation. The list identifies five targeted treatment options that ASTRO recommends for detailed patient-physician discussion before being prescribed.

ASTRO’s five recommendations are:

- Don’t routinely recommend proton beam therapy for prostate cancer outside of a prospective clinical trial or registry.

There is no clear evidence that proton beam therapy for prostate cancer offers any clinical advantage over other forms of definitive radiation therapy. Clinical trials are necessary to establish a possible advantage of this expensive therapy.
From whence comes good guidance?

- First-off: the Golden Rule. Always place the patient first.
- Second: We must acknowledge our conflicts of interest and do everything possible to keep them from influencing our decision-making.
- Third: By better understanding disease, testing, and treatment, we can make better choices
  -- Reliance on high-quality medical evidence is best
Conclusions

- Recognize the conflicts in our professional lives
- Keep abreast of the literature
- Look up our society’s Choosing Wisely recommendations
- When in doubt, place the patient’s interest first

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