

THE PERILS OF OVERDIAGNOSIS & OVERTREATMENT

Cured yesterday of my disease, I died last night of my physician.

Matthew Prior, 1714

Overdiagnosis in Human Medicine

- Preventing Overdiagnosis Conference 2013-present

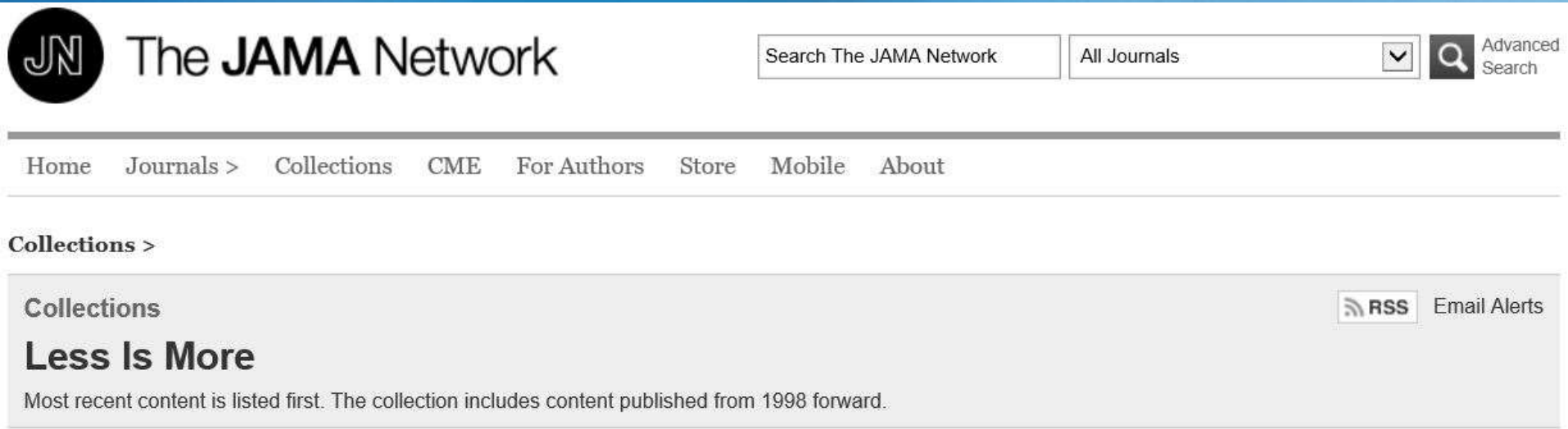


- Too Much Medicine: British Medical Journal



Overdiagnosis in Human Medicine

- Less is More: Journal American Medical Association



The screenshot shows the top navigation bar of The JAMA Network website. It includes the JN logo, a search bar, a dropdown menu for 'All Journals', and an 'Advanced Search' button. Below the navigation bar is a horizontal menu with links to Home, Journals, Collections, CME, For Authors, Store, Mobile, and About. The 'Collections' link is highlighted. Below the menu, the 'Collections >' section is displayed, featuring the 'Less Is More' collection. The collection title is in large bold text, and a description below it states: 'Most recent content is listed first. The collection includes content published from 1998 forward.' To the right of the collection title are links for 'RSS' and 'Email Alerts'.

JN The **JAMA** Network

Search The JAMA Network

All Journals

Advanced Search

Home Journals > Collections CME For Authors Store Mobile About

Collections >

Collections

Less Is More

Most recent content is listed first. The collection includes content published from 1998 forward.

RSS Email Alerts

Overdiagnosis in Human Medicine

- Choosing Wisely
 - Consortium of 70 specialty boards
 - Lists of interventions to question or avoid
 - Evidence-based recommendations



What is Overdiagnosis?

- Tuck
- 5-year-old MN Lab
- Acute LH lameness
- PE: effusion and drawer L stifle
- TDx- CCL Rupture



What is Overdiagnosis?

- CBC- WNL
- CHEM- ALT mod elevated
- ABD US- few indistinct, mildly hypoechoic hepatic nodules
- Tru-Cut Bx- benign nodular regeneration



What is Overdiagnosis?

Cause of Death

Complications from Biopsy Procedure

Overdiagnosis

What is Overdiagnosis?

The correct diagnosis of a disease which is present but will never cause significant symptoms or death.

- the detection of clinically irrelevant disease through diagnostic testing of asymptomatic individuals
- the expansion of disease definitions or detection thresholds to reclassify asymptomatic individuals as ill
- the identification of incidental lesions on imaging asymptomatic individuals
- the process of medicalization-- the creation of new diseases through the reclassification of physiological and behavioral phenomena previously considered normal

What isn't Overdiagnosis?

Not Misdiagnosis

- the detection of disease which is not actually present (e.g. false positive test results)
- the misidentification of disease

Not diagnosis

- the detection of disease is symptomatic patients

What is Overtreatment?

Treatment which provides no benefit to the patient, in terms of symptom relief or prolonged survival, or which does more harm than good.

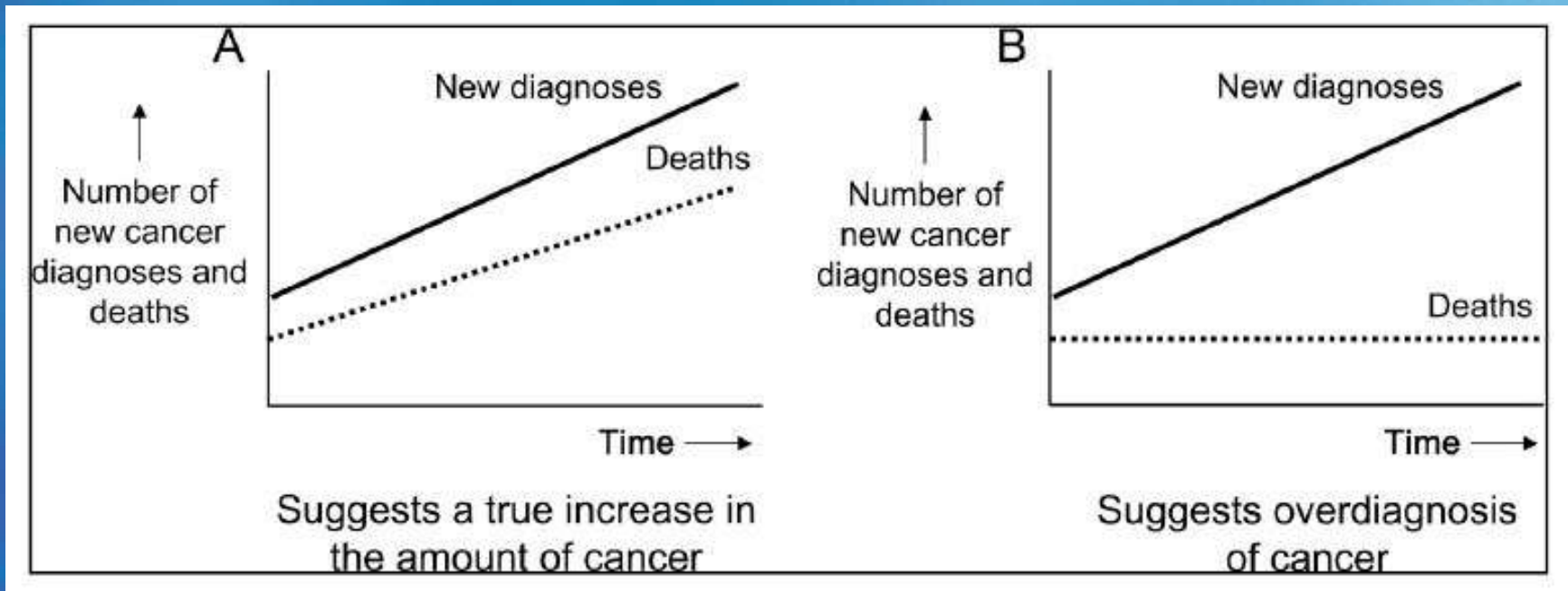
- Overtreatment can exist without overdiagnosis
- Any treatment in response to overdiagnosis is overtreatment

How to Identify Overdiagnosis

- Overdiagnosis cannot be identified in individuals, at least not until after the opportunity for making diagnostic and treatment decisions has passed.
- Can only identify
 - in retrospect
 - in epidemiologic data

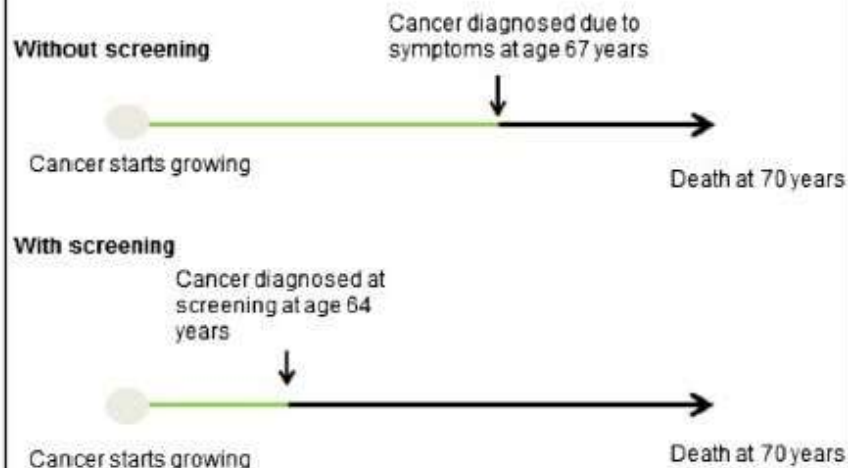
How to Identify Overdiagnosis

- Incidence and mortality data for cancer:

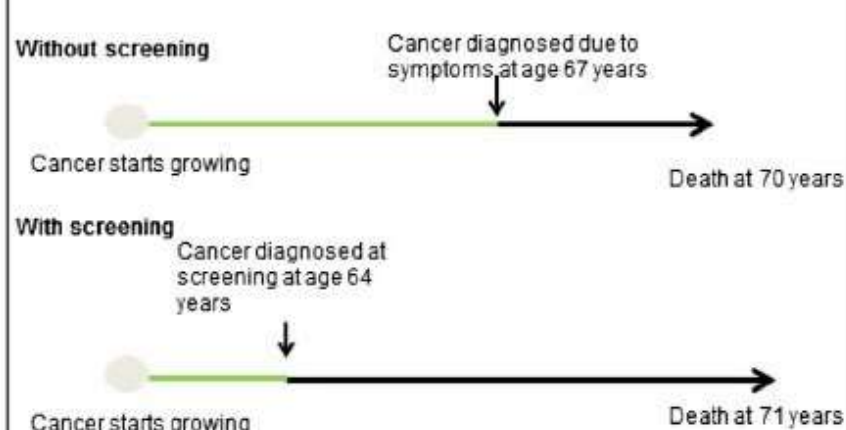


How to Identify Overdiagnosis

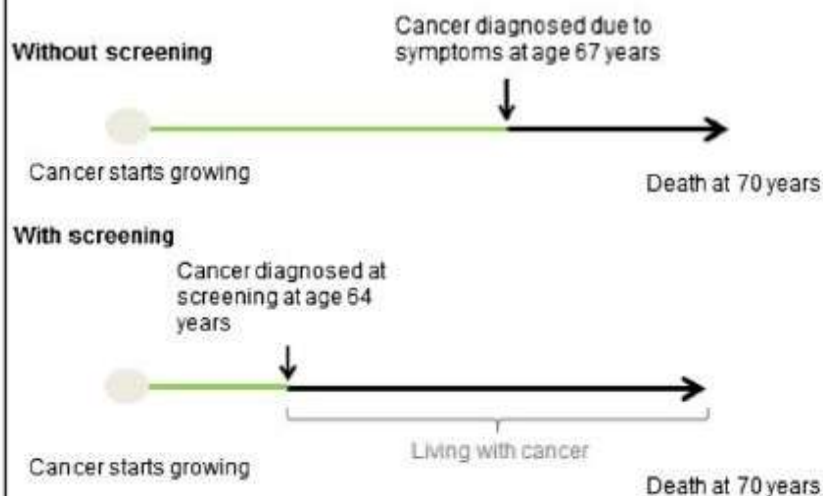
A: Screening is in-effective; living longer with cancer



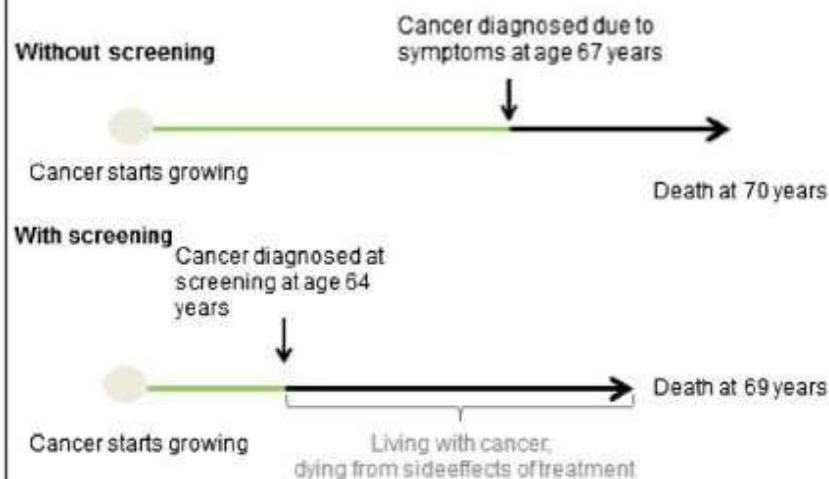
B: Screening is effective



C: Overdiagnosis; only side-effects of treatment



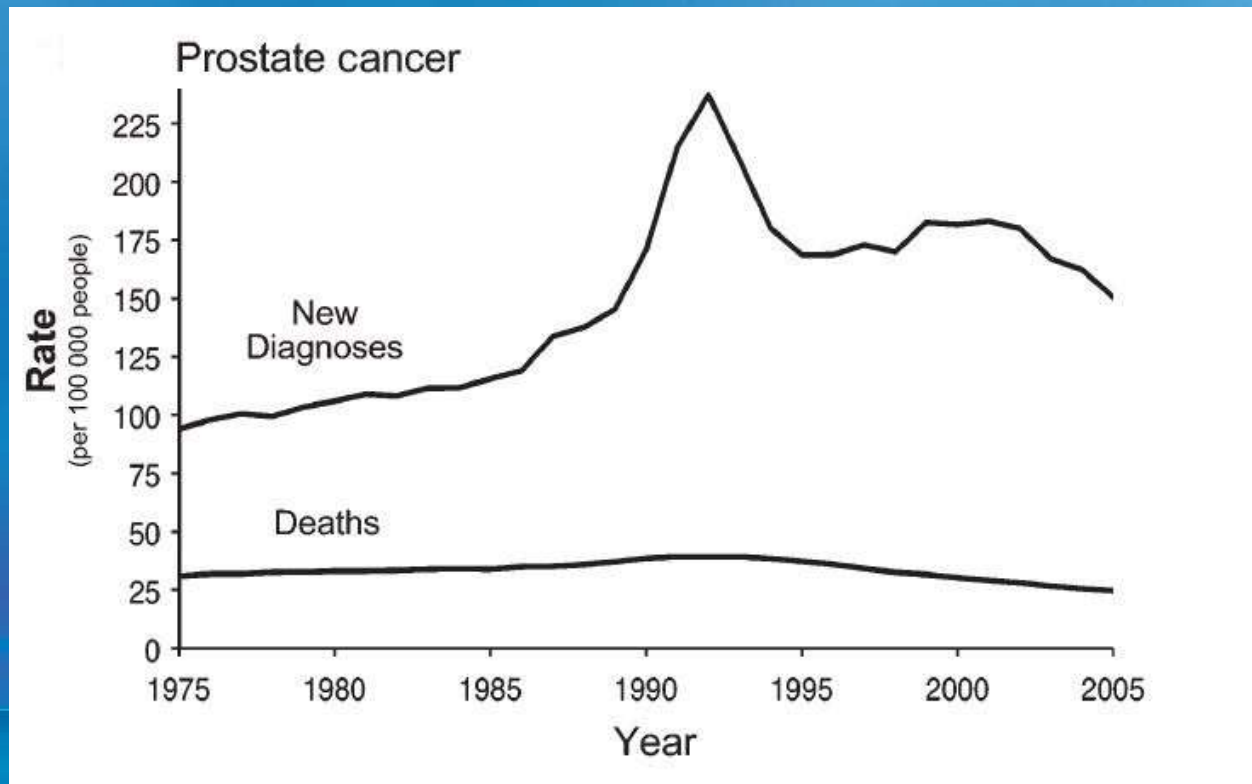
D: Overdiagnosis; death from heart problems related to treatment of overdiagnosed cancer



How Common is Overdiagnosis?

Prostate Cancer Screening

- Prostate Specific Antigen (PSA)
- Screening of asymptomatic men increased cases diagnosed



How Common is Overdiagnosis?

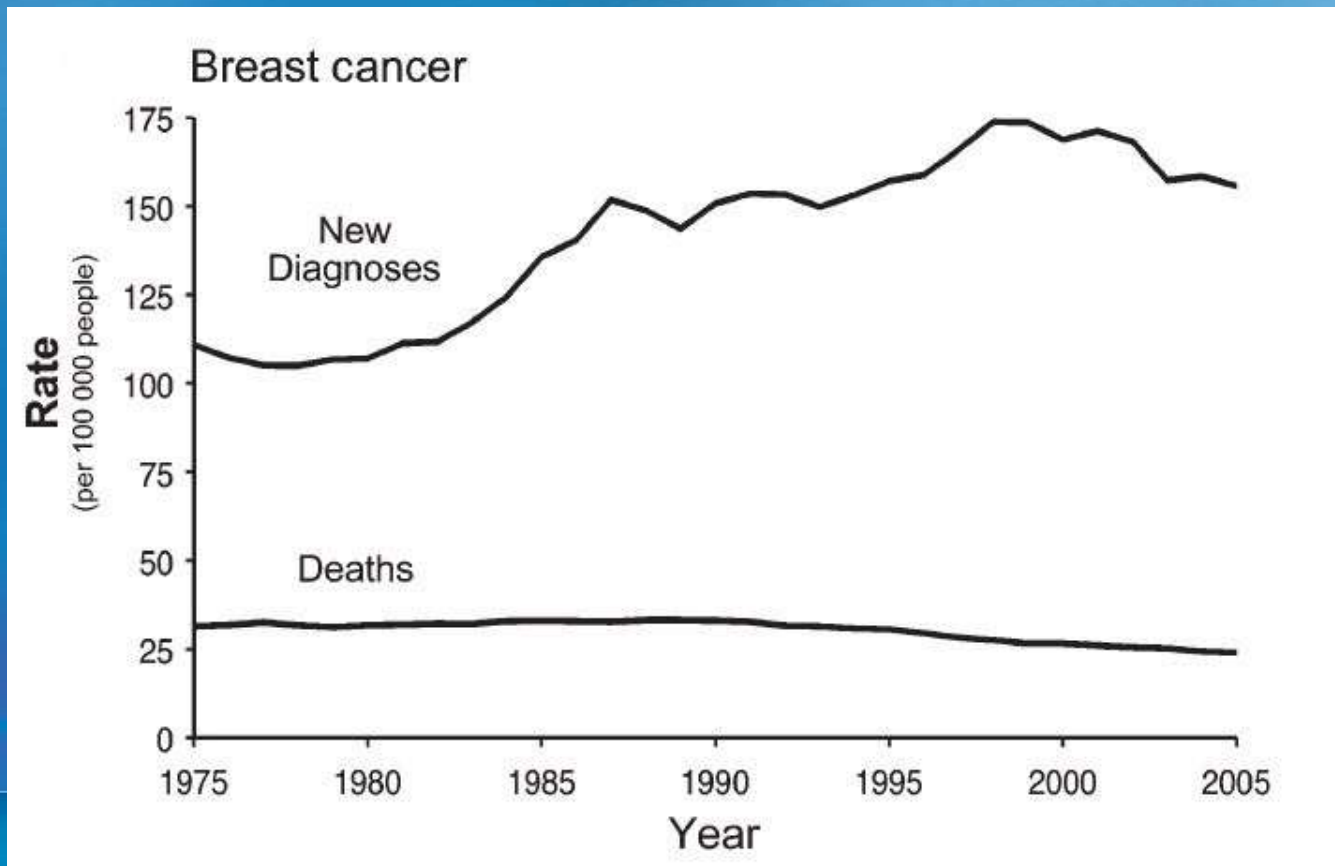
Prostate Cancer Screening

- From 5%-75% of men diagnosed by screening were overdiagnoses
 - Best evidence is 25-30% would never have had clinical illness
 - 30-100 men treated unnecessarily for every death prevented
 - 1 death prevented for 1000 men screened

How Common is Overdiagnosis?

Breast Cancer Screening

- Mammography of asymptomatic women <50



How Common is Overdiagnosis?

Breast Cancer Screening

- From 10%-90% of women diagnosed by screening were overdiagnoses
 - Best evidence is 30% would never have had clinical illness
 - 2-10 women over 10 years of screening treated unnecessarily for every death prevented
 - In France in 2010-
 - 30,000-37,000 women overdiagnosed

How Common is Overdiagnosis?

CT Imaging Asymptomatic People

	Percentage with lesion detected (a)	10-year risk of cancer mortality (b)	Chance lesion is lethal cancer (c=b/a)	Chance lesion is not lethal cancer (d=1-c)
Lung (smokers)	50	1.8	3.6	96.4
Lung (never smoked)	15	0.1	0.7	99.3
Kidney	23	0.05	0.2	99.8
Liver	15	0.08	0.5	99.5

(This page intentionally left blank.)

What's the Harm of Overdiagnosis?

Financial Harm

- Wasted healthcare resources
- Increased healthcare costs
- Decreased availability of care
- Economic euthanasia

What's the Harm of Overdiagnosis?

Financial Harm

- Overdiagnosis from mammography adds \$4 billion per year in the U.S. in subsequent Dx and Tx costs
- Tx of mild hypertension detected through screening adds \$32 billion per year in the U.S.
- Total cost of unnecessary care in the U.S. estimated at \$200 billion per year

(This page intentionally left blank.)

What's the Harm of Overdiagnosis?

Patient Harm

- Anxiety of diagnosis
- Injury from unneeded test and treatments

What's the Harm of Overdiagnosis?

Prostate Cancer

- 85.9% of men with positive PSA tests underwent at least one biopsy
 - 20-50% minor complication rate from first-time Bx (e.g. hematuria, discomfort)
- Many end up having surgery
 - 50% experience sexual dysfunction
 - 30% experience difficulty urinating
 - 1-2/1000 die due to surgery
- Rates of CVD and suicide increase immediately after Dx *even before treatment*

What's the Harm of Overdiagnosis?

Breast Cancer

- France in 2010
 - 60% overdiagnosis estimated
 - 80% of these have radiotherapy; 30,000 women
 - Ultimately this will produce
 - 843 deaths from cardiovascular disease
 - 214 new tumors from radiation
- For every 2000 women screened over 10 years
 - 1 breast cancer death prevented
 - 10 women treated unnecessarily (Sx, chemo, RadTx)
 - 200 women will experience distress of cancer Dx

What Causes Overdiagnosis?

Psychological Factors

- Commission Bias-Don't just stand there, do something!!
 - Justify our charges
 - Appear/Feel in control
 - Defensive medicine
 - What if I do nothing and something bad happens?

What Causes Overdiagnosis?

Psychological Factors

- Anecdotal Medicine
 - “You have to do this test. It found cancer in...”
 - “There was this patient once that had [insert rare/interesting disease], and it was awful. I’m never missing that again!”
- It can’t do any harm

What Causes Overdiagnosis?

Other Factors

- More sensitive diagnostic tests
- Incentives for more Dx/Tx
 - Insurance reimbursement
 - Patient/client demand
 - Marketing
 - Income

How to Prevent Overdiagnosis?

- Awareness
- Collect and analyze relevant data
- Targeted diagnostics
- Caution with Screening
- Shared decision-making

How to Prevent Overdiagnosis?

- Evidence-based Medicine
 - Manage uncertainty- quantify, disclose
 - Reduce reliance on anecdote
 - Best evidence concerning Dx/Tx interventions
 - Incorporate evidence, experience, client values formally into decision-making

Overdiagnosis & Veterinary Medicine

- Less risk than in human medicine?
 - Clients pay directly, which may reduce unnecessary testing and treatment
 - Less litigation
 - Less demand for Dx/Tx
 - Pets can't report symptoms

Overdiagnosis & Veterinary Medicine

- More risk than in human medicine?
 - Zero data collection and analysis
 - Less evidence-based medicine
 - Guidelines, standard of care
 - Anecdote/Opinion-based medicine
 - No insurance industry restraints

Opportunities for Overdiagnosis in Veterinary Medicine

Pre-anesthetic Bloodwork

- Abnormalities often found
- Rarely lead to changes in plan
- Not associated with complications
- May lead to additional Dx/Tx

Opportunities for Overdiagnosis in Veterinary Medicine

Pre-anesthetic Bloodwork

- The tests reviewed produce a wide range of abnormal results, even in apparently healthy individuals.
- The clinical importance of many of these abnormal results is uncertain.
- The tests lead to changes in clinical management in only a very small proportion of patients, and for some tests virtually never.

Munro, J. (1997)

Opportunities for Overdiagnosis in Veterinary Medicine

Pre-anesthetic Bloodwork

- The clinical value of changes in management which do occur in response to an abnormal test result may also be uncertain in some instances.
- The power of preoperative tests to predict adverse postoperative outcomes in asymptomatic patients is either weak or non-existent.
- For all the tests reviewed, a policy of routine testing in apparently healthy individuals is likely to lead to little, if any, benefit.

Munro, J. (1997)

Opportunities for Overdiagnosis in Veterinary Medicine

Pre-anesthetic Bloodwork

- Don't obtain baseline laboratory studies in patients without significant systemic disease (ASA I or II) undergoing low-risk surgery
- Performing routine laboratory tests in patients who are otherwise healthy is of little value in detecting disease.
- Evidence suggests that a targeted history and physical exam should determine whether pre-procedure laboratory studies should be obtained.

American Society of Anesthesiologists

Opportunities for Overdiagnosis in Veterinary Medicine

Pre-anesthetic Bloodwork

Performing a comprehensive preanesthetic evaluation is the best way to confirm the health status of a pet and to determine if it is in the patient's best interest to proceed with anesthesia. This evaluation includes a...full laboratory assessment.

It is important to identify and evaluate all abnormal findings before anesthesia to ensure the safest outcome for the pet.

Lewis HB. Healthy pets benefit from blood work. Banfield Data Savant. (2006)

Opportunities for Overdiagnosis in Veterinary Medicine

Pre-anesthetic Bloodwork

Requiring mandatory testing for all surgical procedures helps identify underlying medical conditions and reduces stress on staff, clients and patients.

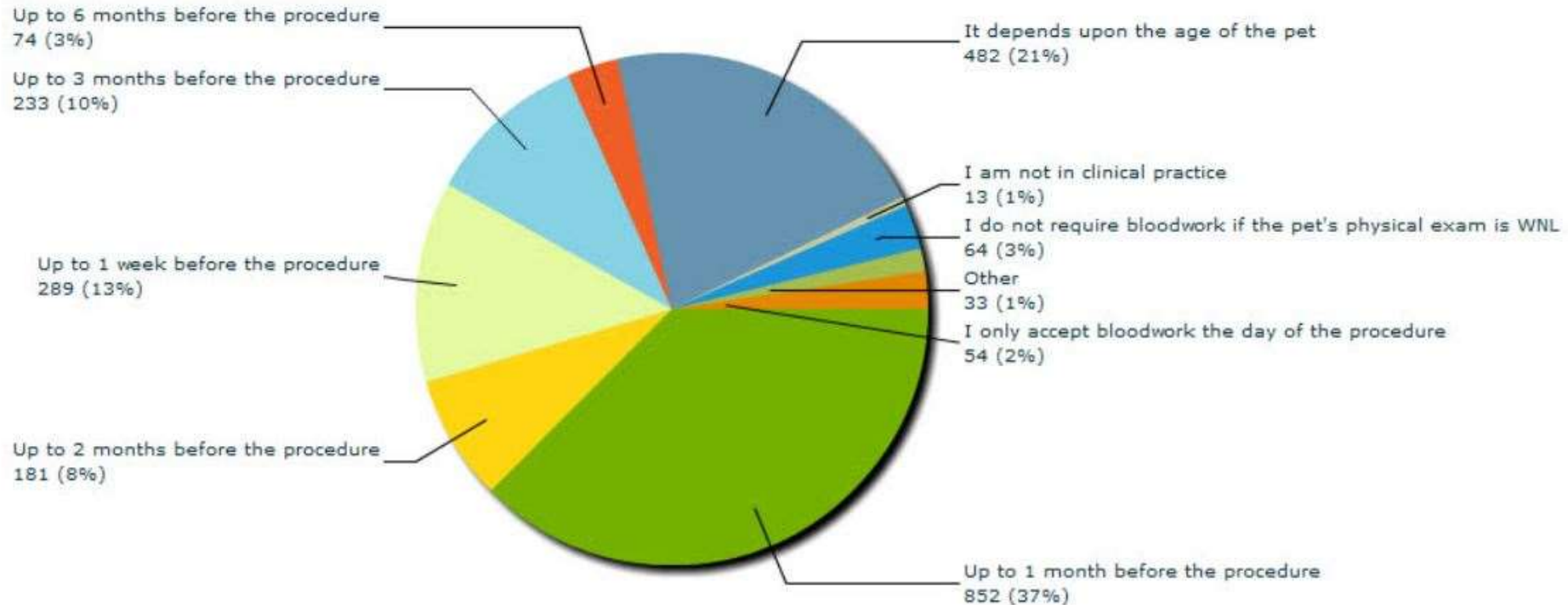
Consider establishing pre-anesthetic testing as an across-the-board policy to be followed for all surgery cases. This means doing the testing for elective, as well as non-elective procedures and for younger, as well as older animals.

Performing a complete profile for every procedure would be ideal ...

Irwin J. Do tests first: Pre-surgical blood work may eliminate variety of surprises. *DVM 360*. 2003

Opportunities for Overdiagnosis in Veterinary Medicine

Survey Results as of 3/16, Total Takers: 2275



Opportunities for Overdiagnosis in Veterinary Medicine

IDEXX- SDMA Screening for CKD

- Symmetric dimethyl arginine
- Detects decreases in GFR earlier than creatinine
 - ~40% decline in renal function (66% for USG, 75% for creatinine)
- “The new standard of care”
- “The most significant innovation in veterinary medicine in 30 years”

Opportunities for Overdiagnosis in Veterinary Medicine

IDEXX- SDMA Screening for CKD

- Added to all chemistry panels free of charge
- Added to IRIS guidelines as diagnostic for Stage 1 CKD and as indication for more aggressive Tx of Stage 2 and 3 CKD
- Doubles the number of cats and dogs identified as IRIS Stage 1 or 2 CKD

Opportunities for Overdiagnosis in Veterinary Medicine

IDEXX- SDMA Screening for CKD

- No estimate or discussion of overdiagnosis
- No demonstrably effective treatment for early stage CKD
- Costs to clients?
 - Additional Dx and Tx
- Harm to patients?
 - Unnecessary Dx/Tx
 - Denial of necessary Tx
 - Euthanasia

Overdiagnosis & Overtreatment

Bottom Line

- A significant cause of wasted resources and harm in human medicine
- No data or even discussion in veterinary medicine
- We need to be aware and collect needed data
- Judicious, evidence-based use of Dx testing
- Clear, explicit discussion of risks and uncertainty with clients

Overdiagnosis & Overtreatment



Overdiagnosis & Overtreatment

- Don't just do something
- Stand there

