

Πρακτική εξοικείωση με τους υπολογιστές ογκολογικού κινδύνου: Καρκίνος του Προστάτη



Σταύρος Γκράβας

Ουρολογική Κλινική
Πανεπιστημιακό Νοσοκομείο Λάρισας

Οι επιλογές μας μπρος στον ασθενή



- Άρνηση δυνατότητας πρόβλεψης
- Πρόβλεψη βασιζόμενος στην κλινική κρίση και εμπειρία
- Πρόβλεψη του αποτελέσματος για το γενικό πληθυσμό –ομάδα που ανήκει ο ασθενής
- Αξιολόγηση του κινδύνου και εφαρμογή νομογράμματος

In terms of decision making, predictions based on an algorithm or nomograms have been shown to be more accurate than those based on clinical judgment and experience, and superior to risk groups as well.^{1,2}

Roos PL, et al Semin Urol Oncol 2002
Specht MC, et al Ann Surg Oncol 2005

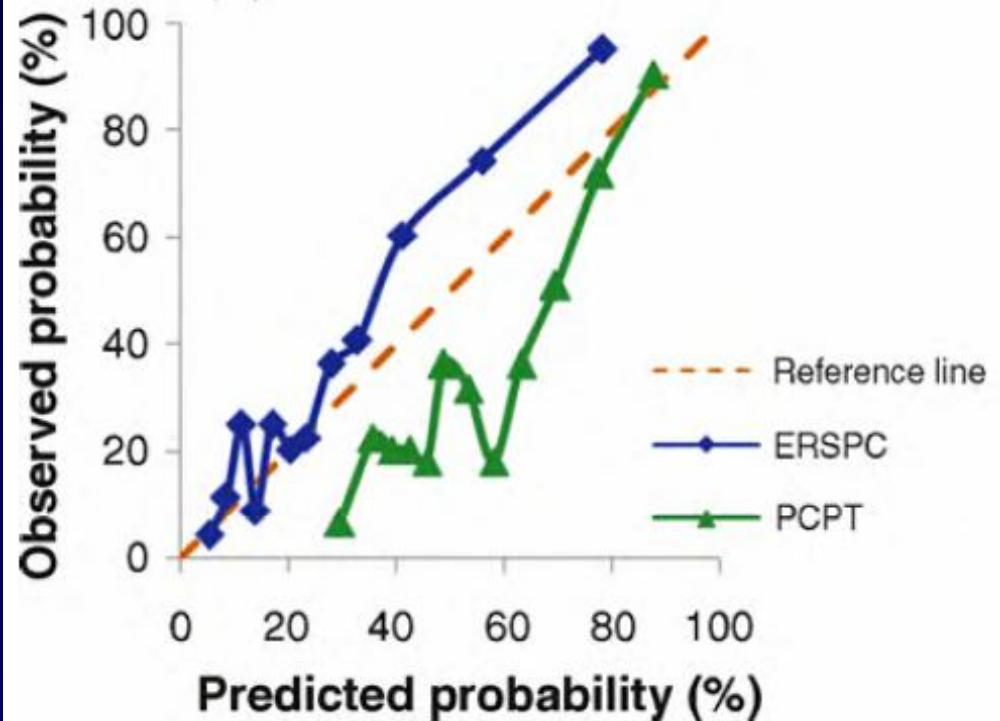
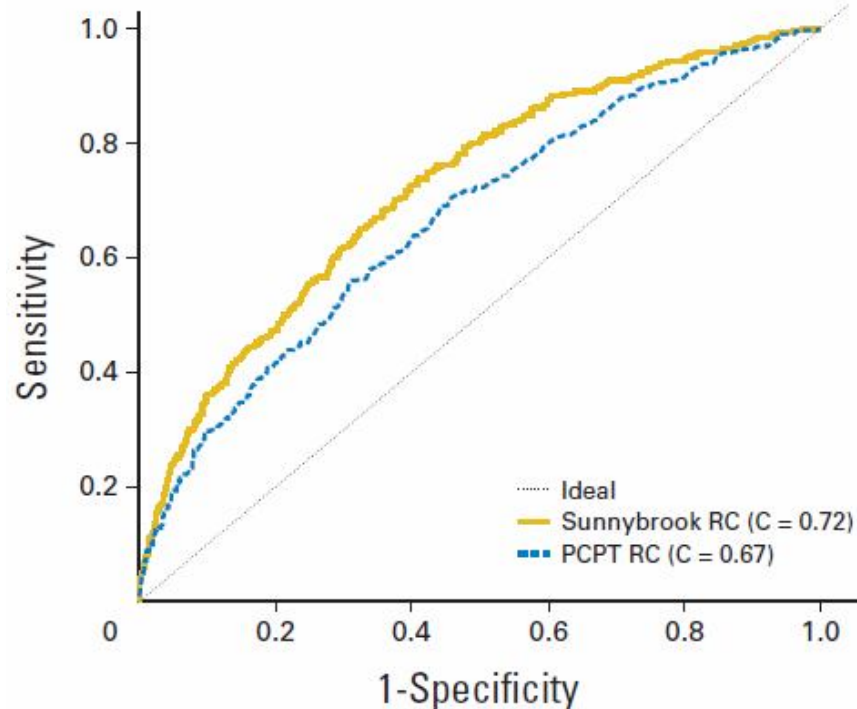
Risk calculators: Νομογράμματα

Νομόγραμμα: Γραφική αναπαράσταση ενός στατιστικού τύπου που αθροίζει παραμέτρους πρόβλεψης για να υπολογίσει την πιθανότητα ενός συγκεκριμένου αποτελέσματος

Muhammad Al Khawarizmi (780-850)
JL Henderson Blood nomogram 1928

Φιλικά προς το χρήστη
Αυτόματος υπολογισμός πολύπλοκων μαθηματικών τύπων
Διαθέσιμα (υπολογιστές – δωρεάν)

Χαρακτηριστικά Risk calculators



Accuracy:

AUC → δυαδικά αποτελέσματα

Calibration:

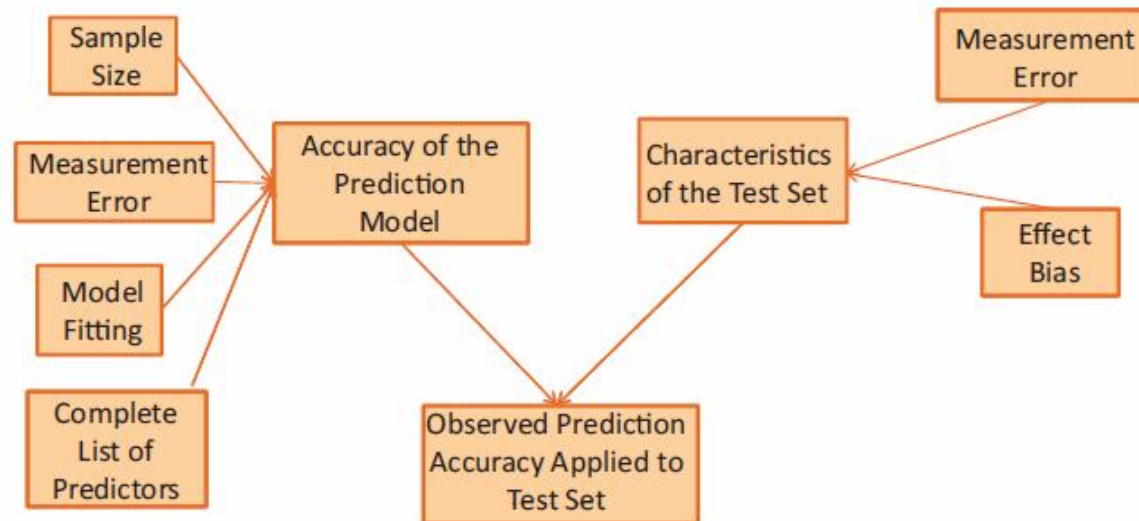
Εφαρμογή σε υπο-πληθυσμού



Editorial

Factors Affecting the Accuracy of Prediction Models Limit the Comparison of Rival Prediction Models When Applied to Separate Data Sets

Michael W. Kattan*



Κανένα μοντέλο δεν είναι τέλειο:

- Άγνοια όλων των απαραίτητων για την πρόβλεψη παραμέτρων
- Λάθη μέτρησης στις παραμέτρους μειώνει την ακρίβεια
- Μέγεθος δείγματος ανεπαρκές για τους συντελεστές του μοντέλου (FU-events)
- Εφαρμογή σε πληθυσμό με παρόμοια χαρακτηριστικά (validity)

Πολυάριθμοι και για όλες τις

Reference	Year	Prediction form	Outcome	No. of patients	Variables	Discrimination	Validation	
							Internal	External
Prediction of Gleason score upgrading								
D'Amico et al [21]	1999	Look-up table	Gleason score upgrading (defined as 50% or higher probability of Gleason ≥ 4)	693	PSA, clinical stage, prostate volume	Internal: Not reported External: 52.3%	-	X
Chun et al [22]	2006	Nomogram	Gleason score upgrading (defined as any upgrade from prostatic biopsy)	2982	PSA, clinical stage, primary biopsy Gleason, secondary	Internal: 80.4% External: 74.9-79.0%	X	X
Kulkarni et al [23]	2007	Nomogram	BCR, yr	500	Biopsy Gleason sum, clinical stage, PSA	Internal: 70.0% External: 66.0%	X	X
Capitanio et al [24]	2007	Nomogram	BCR, yr	500	Biopsy Gleason sum, clinical stage, PSA	Internal: 70.0% External: 66.0%	X	X
Moussallem et al [25]	2007	Nomogram	BCR, yr	500	Biopsy Gleason sum, clinical stage, PSA	Internal: 70.0% External: 66.0%	X	X
Predictors of pathologic complete response [26]	2010	Nomogram	BCR, yr	500	Biopsy Gleason sum, clinical stage, PSA	Internal: 70.0% External: 66.0%	X	X
Reference	Yr	Prediction form	Patient population	No. of patients	Variables	Discrimination	Validation	
D'Amico et al [27]	1997	Probability graph	EBRT	5	Biopsy Gleason sum, clinical stage, PSA	Not available	-	X
D'Amico et al [59]	1998	Probability graph	EBRT and brachytherapy	3, 5	Biopsy Gleason sum, clinical stage, PSA	Not available	-	X
Kattan et al [83]	2000	Probability graph	Brachytherapy	5	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Kattan et al [84]	2001	Nomogram	EBRT	5	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Zelefsky et al [86]	2007	Nomogram	Brachytherapy	5, 10	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Patterson et al [87]	2010	Nomogram	Brachytherapy	9	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Reference	Yr	Prediction form	Patient population	No. of patients	Variables	Discrimination	Validation	
D'Amico et al [88]	2002	Probability graph	EBRT	381	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
D'Amico et al [67]	2003	Probability graph	EBRT	270	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Zhou et al [81]	2005	Probability graph	EBRT	651	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Kattan et al [85]	2005	Probability graph	EBRT	1677	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Shovin et al [78]	2005	Nomogram	EBRT	71	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Partin et al [28]	1998	Look-up table	Progression to distant metastasis	381	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Ohori et al [29]	1998	Look-up table	Progression to distant metastasis	270	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
D'Amico et al [73]	1998	Look-up table	Progression to distant metastasis	651	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Walz et al [74]	2009	Nomogram	Progression to distant metastasis	1677	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Steuber et al [74]	2005	Nomogram	Progression to distant metastasis	71	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Stephenson et al [75]	2005	Nomogram	Progression to distant metastasis	71	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Suardi et al [76]	2008	Nomogram	Progression to distant metastasis	71	Biopsy Gleason sum, clinical stage, PSA	Internal: 73% External: 76%	X	X
Baccala et al [45]	2007	Nomogram	SVI	6740	Age, PSA, biopsy Gleason sum, clinical stage	Internal: 80.0%	X	-
Gallina et al [46]	2007	Nomogram	SVI	666	PSA, clinical stage, biopsy Gleason sum, percent positive biopsy cores	Internal: 79.2% External: 81.0%	X	X
Cagiannos et al [48]	2003	Nomogram	LNI assessed with limited pelvic lymphadenectomy	5510	PSA, clinical stage, biopsy Gleason sum	Internal: 76.0%	X	-
Briganti et al [49]	2006	Nomogram	LNI assessed with extended pelvic lymphadenectomy (≥ 10 nodes removed)	602	PSA, clinical stage, biopsy Gleason sum	Internal: 76.0% External: 82.1-82.4%	X	X

PCa: Risk calculators on-line

1) Νομόγραμμα που αναπτύχθηκε να υπολογίσει τον κίνδυνο ύπαρξης PCa από τη μελέτη PCPT

<http://deb.uthscsa.edu/URORiskCalc/Pages/uroriskcalc.jsp>

2) Κίνδυνος ύπαρξης PCa

http://sunnybrook.ca/content/?page=OCC_prostateCalc

3) Οι κλασσικοί πίνακες του Partin (πριν τη θεραπεία)

<http://urology.jhu.edu/prostate/partintables.php>

4) Τα περίφημα νομογράμματα του Memorial Sloan Kettering Cancer Center (πριν τη θεραπεία, υποτροπή μετά ΡΠρ, υποτροπή μετά ακτινοθεραπεία σωτηρίας, πρόοδος, ορμονοανθεκτικού καρκίνου)

<http://nomograms.mskcc.org/Prostate/index.aspx>

PCa: Risk calculators on-line

5) Cap Calculator: Ίσως το καλύτερο με ταυτόχρονα αποτελέσματα πολλών νομογραμμάτων για κάθε περίπτωση

www.capcalculator.org

6) Το νομόγραμμα του Han (υποτροπή μετά ΡΠρ)

<http://urology.jhu.edu/prostate/hanTables.php>

7) Πολυάριθμοι!! πίνακες για κάθε περίπτωση

<http://www.nomogram.org/>

8) Νομογράμματα της SWOP βασισμένα στα αποτελέσματα της European Randomized Study of Screening for Prostate Cancer

<http://www.prostatecancer-riskcalculator.com/via.html>

9) Το CARPA score βασισμένο σε data του Cancer of the Prostate Strategic Urologic Research Endeavor για την ταξινόμηση ασθενών σε ομάδα κινδύνου για την επιλογή του τρόπου αντιμετώπισης

http://urology.ucsf.edu/patientGuides/uroOncPt_Assess.html

Διαφορές μεταξύ των υπολογιστών: Το παράδειγμα του *CaPcalculator*

http://www.capcalculator.org/use-cap-calculator CaP CALCULATOR

Αρχείο Επεξεργασία Προβολή Αγαπημένα Εργαλεία Βοήθεια

- Home
- Overview
- Intended Use
- Logout
- Use CaP Calculator
- Bibliography
- Conflicts of Interest
- Links
- Who We Are
- Contact Us

Using CaP Calculator

Using this form applies to men recently diagnosed with clinically localized or locally advanced (clinical stage T1-3) prostate cancer. It is currently not designed for use with other patients.

1. Fill in the following fields:
(* = required field)

Age:

* AJCC Clinical T Stage:

* PSA at Diagnosis: ng/mL

Biopsy Information:
Fill in all available information; entering Gleason is required and entering biopsy data will provide more information needed for some predictive models

NOTE: Only fill out %CA for involved cores.

* Primary Gleason: * Secondary Gleason:

Number Sampled Cores: Number Positive Cores:

Core No.	%CA on Core	Any Gleason 4 or 5	Primary Gleason 4 or 5
1	<input type="text" value="20"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
2	<input type="text" value="20"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
3	<input type="text" value="40"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
4	<input type="text" value="60"/>	<input type="text" value="No"/>	<input type="text" value="No"/>

EN 11:28 μμ 31/3/2012

Διαφορές μεταξύ των υπολογιστών: Το παράδειγμα του CaPcalculator

http://www.capcalculator.org/disease_results.pl CaP CALCULATOR

Αρχείο Επεξεργασία Προβολή Αγαπημένα Εργαλεία Βοήθεια

Date Used: 03-31-2012

Patient:	_____
Age:	65
AJCC Clinical T Stage:	T1c
Gleason Sum:	6 = (Primary: 3 + Secondary: 3)
Most Recent PSA:	6.3 ng/mL

Extracapsular Extension (ECE): Range: 36% to 39%

Roach (UCSF) :	39%
Partin 1997*Ψ:	30%
Makarov (JHH)Ψ:	18%
Gancarczyk (CPDR)*Ψ :	36%

Seminal Vesicle Invasion (SVI): Range: 2% to 6%

Roach/UCSF:	6%
Partin 1997*Ψ:	2%
Makarov (JHH)Ψ:	2%
Gancarczyk (CPDR)*Ψ:	5%

Lymph Node Involvement (LNI): Range: 1% to 4%

Roach (UCSF):	4%
Partin 1997*:	1%
Makarov (JHH):	1%
Gancarczyk (CPDR)*:	2%
Cagiannos (MSKCC)*:	1%
Conrad (Hamburg):	2%
Naya (MDACC)*:	<1%
Seer LN Risk	1%

Likelihood of Positive Margins after Prostatectomy Cheng (Mayo): 21%

Why Some Studies Underestimate Disease Spread

We designed CaP Calculator to estimate the risk of extracapsular extension (ECE), seminal vesicle invasion (SVI), and lymph node involvement (LNI) as accurately as possible. However, some predictive models have been designed to predict pathologic stage rather than a specific pathologic finding.

What does that mean?

It means that pathologic stage is a summation of all the findings at the time of surgery and usually only counts the most advanced feature. The Partin tables/nomogram (both the multi-institutional and the update by Makarov) as well as the CPDR model both estimate stage, which means they both underestimate ECE and SVI.

Then why use them?

The Partin Tables are well known and have been used by many urologists and radiation oncologists since its publication in 1997. Along with the CPDR, they offer an approximation and have more patients analyzed than the Roach formulae.

Memorial Sloan-Kettering Cancer Center (MSKCC) has two nomograms that can more accurately calculate ECE and SVI independently of prostate stage. We plan to include these in an upgrade after reformatting of the user's data entry page. Until then, please feel free to [use the MSKCC nomograms](#) by going to their website.

11:30 μμ 31/3/2012

Χρήση νομογραμμμάτων στον PCa

♂ Ηλικίας 65 ετών

PSA 6.3ng/ml

ΔΕΠ: Χωρίς υποψία

Κάντε κλικ για να επεξεργαστείτε το υποδείγματός



Η ερώτηση: Γιατρέ μου σύστησαν βιοψία... Ποια η πιθανότητα να έχω καρκίνο;

The Prostate Cancer Prevention Trial Prostate Cancer Risk Calculator (PCPTRC)

<http://deb.uthscsa.edu/URORiskCalc/Pages/uroriskcalc.jsp>

Ο PCPTRC αναπτύχθηκε με βάση τους 5519 άνδρες του Sunnybrook group του Prostate Cancer Prevention Trial.

- Όλοι είχαν PSA μικρότερο/ίσο του 3.0 ng/ml
- FU με PSA και ΔΕΠ ανά έτος
- Επί PSA > 4.0 ng/ml

**Predictive accuracy: 0.70
vs Sunnybrook**

Thompson IM, et al J Natl Cancer Instit 2006

The Prostate Cancer Prevention Trial Prostate Cancer Risk Calculator (PCPTRC)



Individualized Risk Assessment of Prostate Cancer

Enter Your Information

Race:

Age:

PSA Level [?]: ng/ml

Family History of Prostate Cancer [?]:

Digital Rectal Examination [?]:

Prior Prostate Biopsy [?]:

Adjusted Prostate Cancer Risk Calculators

[BMI](#)

[PCA3](#)

[Finasteride](#)

[%freePSA](#)

[\[-2\]proPSA](#)

[%freePSA and \[-2\]proPSA](#)

Useful Links for Prostate Cancer

[National Cancer Institute](#)

[American Cancer Society](#)

Other Individualized Risk Assessment Tools for the Family

[Breast Cancer](#)

[Colorectal Cancer](#)

[Lung Cancer](#)

[Figures](#) [Formulas](#) [R Code](#) [Disclaimer](#)



Η ερώτηση: Γιατρέ μου σύστησαν βιοψία... Ποια η πιθανότητα να έχω καρκίνο;

Archievo Epexergasia Probolih Agatimena Ergolia Bihtheia

Individualized Risk Assessment of Prostate Cancer

Results

Based on the data provided, the person's estimated risk of biopsy-detectable prostate cancer is **44.2%**.

The **95%** Confidence Interval for this prediction is **40.7%** to **47.7%**.
[More information about the confidence interval](#)

The person's estimated risk of biopsy-detectable **high grade** prostate cancer is **13.3%**.

The **95%** Confidence Interval for this prediction is **10.3%** to **16.3%**.
[More information about the confidence interval](#)

Your Information

Race	Caucasian
Age	65
PSA Level	6.3 ng/ml
Family History of Prostate Cancer	No
Digital Rectal Examination	Normal
Prior Prostate Biopsy	Never Had A Biopsy

Another Calculation

EL 7:48 μμ 30/3/2012

Χρήση νομογραμμμάτων στον PCa

Ο ασθενής υποβάλλεται σε βιοψία:

- ΑδενοCa Gleason score 6 (3+3)
- 3/6 AP (20-60%) και 1/6 ΔΕ (20%)

Κάντε κλικ για να επεξεργαστείτε τον υποδείγματος



Η ερώτηση: Τουλάχιστον είναι μόνο στον προστάτη;

Πίνακες του Partin

<http://urology.jhu.edu/prostate/partintables.php>

Βασιζόμενοι στο PSA, Gleason Score, και Κλινικό Στάδιο υπολογίζουν την πιθανότητα:

Extraprostatic Extension,
Seminal Vesicle Invasion,
Lymph Node Invasion

Predictive accuracy: 0.74

Partin AW, et al.. JAMA 1997

Partin AW, et al.. Urology

2001

Πίνακες του Partin

Danil V. Makarov, Bruce J. Trock, Elizabeth B. Humphreys, Leslie A. Mangold, Patrick C. Walsh, Jonathan I. Epstein, and Alan W. Partin

The "Partin tables" were originally developed by urologists Alan W. Partin, M.D., Ph.D., and Patrick C. Walsh, M.D. based on accumulated data from hundreds of patients who had been treated for prostate cancer.

Based upon PSA, Gleason Score, and Clinical Staging, a probability is calculated for each of the following four: **Organ Confined Disease**, **Extraprostatic Extension**, **Seminal Vesicle Invasion**, and **Lymph Node Invasion**

Select:

PSA: 6.1 - 10.0 ng/ml Gleason Score: 5-6

Clinical Stage: T1c

Calculate Clear

Ingeniously correlating the three things that were known about a man's disease -- PSA level, Gleason score, and estimated clinical stage -- the tables were designed to help men and their doctors predict the definitive Pathological Stage (determined after surgery, when a pathologist examines the removed prostate for the presence of cancer) and best course of treatment.

Now the tables have been updated with the knowledge gained from having treated thousands of patients, to reflect the trends in presentation and pathologic stage for men newly diagnosed with clinically localized prostate cancer at James Buchanan Brady Urological Institute. Clinicians can use these nomograms to counsel individual patients and help them make important decisions regarding their disease.

Treatments

- Anatomical Retropubic Prostatectomy- Detailed description of the surgical technique
- Nerve-Sparing Robotic Radical Prostatectomy
- Nerve-Sparing Laparoscopic Radical Prostatectomy
- Active Surveillance
- Hereditary Prostate Cancer
- Erectile Dysfunction Following Radical Prostatectomy

EL 7:52 μμ 30/3/2012

Η ερώτηση: Τουλάχιστον είναι μόνο στον προστάτη;

The screenshot shows a web browser window displaying the website for the James Buchanan Brady Urological Institute at Johns Hopkins Medicine. The page is titled "PROSTATE CANCER" and features a "Partin Table Lookup" section with the following data:

Organ confined:	81 (79-83)
Extraprostatic extension:	18 (16-19)
Seminal Vesicle Invasion:	1 (1-2)
Lymph Node Invasion:	0 (0-0)

All numbers represent predictive probabilities with a 95 percent confidence interval; ellipses indicate lack of sufficient data to calculate probability.

Below the table, a question is posed: "What is the probability of recurrence following surgery? [\(THE HAN TABLES\)](#)"

The website navigation includes a top menu with "Home", "Education", "Research", "Patients Care", "Divisions", "Newsletter", and "Fundraising". A secondary menu below the main content area includes "Main Page", "About Prostate Cancer", "About Us", "Newsletter", "Resources", "Appointments", and "Quick Links". The "Quick Links" section on the right lists various topics such as "Prostate: Function, Anatomy", "Screening and diagnosis", "The Partin Tables", "The Han Tables", "Treatments", "Anatomical Retropubic Prostatectomy- Detailed description of the surgical technique", "Nerve-Sparing Robotic Radical Prostatectomy", and "Nerve-Sparing Laparoscopic Radical Prostatectomy".

The browser's address bar shows the URL: <http://urology.jhu.edu/prostate/RESULTpartin.p>. The system tray at the bottom indicates the date and time as 30/3/2012, 7:53 μμ.

Χρήση νομογραμμμάτων στον PCa

Ο ασθενής υποβάλλεται σε ριζική
προστατεκτομή:


- Gleason score 7 (3+4)
- AP λοβός 40%
- ΔΕ λοβός <10%
- M(-) SV(-) LN(-) PNI(+)
- Παρακολούθηση με PSA
Κάντε κλικ για να επεξεργαστείτε
υποδείγματός



Η ερώτηση: Όλα καλά αλλά ...Υπάρχει
πιθανότητα να υποτροπιάσει ο καρκίνος;

[Αρχείο](#) [Επιλογή](#) [Προβολή](#) [Αυθάνη](#) [Εργασία](#) [Βοήθεια](#)

[PROSTATE CANCER INFORMATION](#) | [MAKING AN APPOINTMENT](#)


Memorial Sloan-Kettering Cancer Center
[Prediction Tools](#) > [Prostate Cancer Nomograms](#) > [Post-Radical Prostatectomy](#)

PREDICTION TOOLS
 Change Prediction Tool

TEXT SIZE [A](#) [A](#)

Prostate Cancer Nomograms: Post-Radical Prostatectomy

This nomogram can be used to predict the probability that a patient's cancer will recur after radical prostatectomy, that is, the probability at two, five, seven and 10 years that the patient's serum PSA level will become detectable and begin to rise steadily. The nomogram should only be used for patients when radical prostatectomy is the sole, primary treatment. To learn more, visit our [frequently asked questions](#).

Enter Your Information Clear Calculate >

To gather the information required below, download our PDF [worksheet](#).

Pre-Treatment PSA
 PSA value from the laboratory report before the radical prostatectomy was performed or any other therapy for prostate cancer begun. ng/ml (0.1 to 100)

Age
 years old (20 to 120)

Gleason Grade

Primary Gleason Grade at Surgery
 The primary Gleason grade from the radical prostatectomy pathology report.

Secondary Gleason Grade at Surgery
 The secondary Gleason grade from the radical prostatectomy pathology report.

Gleason Sum at Surgery
 Gleason sum will be automatically calculated or can be added here if the primary and secondary Gleason grades are not known.

Year of Prostatectomy
 Year radical prostatectomy was performed. (1997 to Present)

Months Free of Cancer
 Number of months without detectable cancer or a rising PSA following radical prostatectomy. months

Prostatectomy Pathology Report Details

Surgical Margins Positive
 Was cancer present at edges of removed prostate? YES

Extra Capsular Extension
 Was there extra capsular extension? YES

Seminal Vesicle Involvement
 Was cancer present in seminal vesicles? YES

Extra Capsular Extension
 Was there extra capsular extension? YES

Seminal Vesicle Involvement
 Was cancer present in seminal vesicles? YES

Lymph Node Involvement
 Was cancer present in pelvic lymph nodes? YES

Neoadjuvant Hormones
 Treated with hormone therapy prior to radical prostatectomy? YES

Prior Radiation Therapy
 Treated with radiation therapy prior to radical prostatectomy? YES


Your Results

Learn more about your results below.

CURRENT MODEL	HISTORICAL MODEL
Progression-Free Probability After Surgery	2 Year
	5 Year
	7 Year
	10 Year

Make an Appointment

Call us to schedule an appointment or contact us online

[Contact Us](#) 

Πίνακες του Kattan

<http://nomograms.mskcc.org/Prostate/index.aspx>

Υπολογίζει την
 πιθανότητα
 βιοχημικής
 υποτροπής

Predictive accuracy: 0.73-0.80

για επανεξέταση μετά από προστατεκτομή
 στα 2, 5, 7 και 10 έτη

Kattan MW, et al J Clin Oncol 1999

Η ερώτηση: Υπάρχει πιθανότητα να υποτροπιάσει ο καρκίνος;

Memorial Sloan-Kettering Cancer Center

Prediction Tools ► Prostate Cancer Nomograms ► Post-Radical Prostatectomy

Prostate Cancer Nomograms: Post-Radical Prostatectomy

TEXT SIZE

This nomogram can be used to predict the probability that a patient's cancer will recur after radical prostatectomy, that is, the probability at two, five, seven and 10 years that the patient's serum PSA level will become detectable and begin to rise steadily. The nomogram should only be used for patients when radical prostatectomy is the sole, primary treatment. To learn more, visit our [frequently asked questions](#).

Enter Your Information

[Clear](#) [Calculate](#) ►

To gather the information required below, download our PDF [worksheet](#).

Pre-Treatment PSA ng/ml (0.1 to 100)
PSA value from the laboratory report before the radical prostatectomy was performed or any other therapy for prostate cancer begun.

Age years old (20 to 120)

Gleason Grade

Primary Gleason Grade at Surgery
The primary Gleason grade from the radical pathology report.

Your Results

[Learn more](#) about your results below.

	CURRENT MODEL	HISTORICAL MODEL
Progression-Free Probability After Surgery	2 Year	99%
	5 Year	97%
	7 Year	96%
	10 Year	95%

[Print These Results](#)

[Make an Appointment](#)

http://www.mskcc.org/nomograms

EL 8:17 μμ 30/3/2012

Χρήση νομογραμμμάτων στον PCa

Ο ασθενής 4 χρόνια μετά παρουσίασε βιοχημική υποτροπή

- PSA 0.21ng/ml - 0.25ng/ml
- Έλεγχος: κφ
- Ακτινοθεραπεία

Κάντε κλικ για να επεξεργαστείτε το υποδείγματός



Η ερώτηση: Άσχημα νέα γιατρέ μου.... Έχω καμιά πιθανότητα να γίνω καλά;

Memorial Sloan-Kettering Cancer Center
 Prediction Tools > Prostate Cancer Nomograms > Salvage Radiation Therapy

Prostate Cancer Nomograms: Salvage Radiation Therapy

This nomogram is designed for men who have experienced a recurrence of their prostate cancer after treatment with radical prostatectomy. The tool predicts the probability the recurrence can be successfully treated with salvage radiation therapy (SRT), calculating the probability that the cancer will be controlled and the PSA will be undetectable six years after SRT. To learn more, visit our [frequently asked questions](#).

Enter Your Information Clear Calculate

To gather the information required below, download our PDF [worksheet](#).

Prostatectomy PSA
 PSA value before radical prostatectomy: ng/ml (0.1 to 100)

Gleason Grade

Primary Gleason Grade at Surgery
 Primary Gleason grade from the radical prostatectomy pathology report:

Secondary Gleason Grade at Surgery
 Secondary Gleason grade from the radical prostatectomy pathology report:

Gleason Sum at Surgery
 Gleason Sum will be automatically calculated or can be added here if the primary and secondary Gleason grades are not known.

Prostatectomy Pathology Report Details

Surgical Margins Positive YES
 Was cancer present at edges of removed prostate?

Extra Capsular Extension YES
 Was there extra capsular extension?

Seminal Vesicle Involvement YES
 Was cancer present in seminal vesicles?

Lymph Node Involvement YES
 Was cancer present in pelvic lymph nodes?

Elevated Post-Radical Prostatectomy PSA YES
 Did the PSA value obtained after radical prostatectomy remain elevated? (I.E. Did the PSA value never decrease to an undetectable level?)

Pre-Radiotherapy PSA ng/ml (0.1 to 100)
 PSA value from the most recent laboratory report or the value immediately before starting salvage radiation therapy.

PSA Doubling Time months (0.001 to 10000)
 The PSA doubling time should be calculated from all PSA values obtained over the last 12 months – or all values following radical prostatectomy, beginning when the PSA reached its lowest level. To calculate PSA doubling time, visit the [PSA Doubling Time calculator](#).

Radiation Dose Gy (10 to 100)
 Radiation dose value between 10 and 100 Gy. (1,000 rads = 10 Gys.)

Months Disease Free months
 Number of months after radical prostatectomy before PSA level was elevated to 0.2 or higher.

Neoadjuvant Hormones YES
 Does your radiation oncologist plan to administer hormone therapy before or along with the salvage radiation therapy?

Clear Calculate

Your Results

Learn more about your results below.

Progression Free Probability after Salvage Radiation Therapy

Print These Results

Make an Appointment

Call us to schedule an appointment or contact us online

Contact Us

Πίνακες του

Kattan

<http://nomograms.mskcc.org/Prostate/index.aspx>

Υπολογίζει σε ασθενείς με υποτροπή μετά ριζική προστατεκτομή την πιθανότητα επιτυχούς θεραπείας με ακτινοθεραπεία σωτηρίας (PSA μη ανιχνεύσιμο στα 6 χρόνια μετά την ακτινοθεραπεία)

Stephenson AJ, et al. J Clin Oncol 2007

Η ερώτηση: Έχω καμιά πιθανότητα να γίνω καλά;

http://nomograms.mskcc.org/Prostate/Salvage/

Prostate Cancer Nomogra...

Αρχείο Επεξεργασία Προβολή Αγαπημένα Εργαλεία Βοήθεια

PROSTATE CANCER INFORMATION MAKING AN APPOINTMENT

Memorial Sloan-Kettering Cancer Center

Prediction Tools ▶ Prostate Cancer Nomograms ▶ Salvage Radiation Therapy

mskcc.org
PREDICTION TOOLS

Change Prediction Tool

TEXT SIZE ⏏ ⏏

Prostate Cancer Nomograms: Salvage Radiation Therapy

This nomogram is designed for men who have experienced a recurrence of their prostate cancer after treatment with radical prostatectomy. The tool predicts the probability the recurrence can be successfully treated with salvage radiation therapy (SRT), calculating the probability that the cancer will be controlled and the PSA will be undetectable six years after SRT. To learn more, visit our [frequently asked questions](#).

Enter Your Information [Clear](#) [Calculate ▶](#)

To gather the information required below, download our PDF [worksheet](#).

Prostatectomy PSA ng/ml (0.1 to 100)
PSA value before radical prostatectomy.

Gleason Grade

Primary Gleason Grade at Surgery
Primary Gleason grade from the radical prostatectomy pathology report.

Secondary Gleason Grade at Surgery
Secondary Gleason grade from the radical prostatectomy pathology report.

Your Results

[Learn more](#) about your results below.

Progression Free Probability after Salvage Radiation Therapy	6 Year	77%
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[Print These Results](#)

Make an Appointment

Call us to schedule an appointment or contact us online.

8:40 μμ
30/3/2012

ΣΥΝΙΣΤΩΜΕΝΗ ΒΙΒΛΙΟΓΡΑΦΙΑ

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available at www.sciencedirect.com
journal homepage: www.europeanurology.com



Collaborative Review – Prostate Cancer

Predictive and Prognostic Models in Radical Prostatectomy Candidates: A Critical Analysis of the Literature

Giovanni Lughezzani^{a,b,*}, Alberto Briganti^a, Pierre I. Karakiewicz^b, Michael W. Kattan^c,
Francesco Montorsi^a, Shahrokh F. Shariat^d, Andrew J. Vickers^e

EUROPEAN UROLOGY 59 (2011) 566–567

available at www.sciencedirect.com
journal homepage: www.europeanurology.com



Editorial

Factors Affecting the Accuracy of Prediction Models Limit the Comparison of Rival Prediction Models When Applied to Separate Data Sets

Michael W. Kattan^{*}

EUROPEAN UROLOGY 54 (2008) 274–290

available at www.sciencedirect.com
journal homepage: www.europeanurology.com



Review – Prostate Cancer

The Comparability of Models for Predicting the Risk of a Positive Prostate Biopsy with Prostate-Specific Antigen Alone: A Systematic Review

Fritz Schröder^{a,*}, Michael W. Kattan^b

Nomograms for Staging, Prognosis, and Predicting Treatment Outcomes*

Karim Touijer, MD and Peter T. Scardino, MD

Cancer July 1, 2009

Development of a Prostate Cancer Metagram

A Solution to the Dilemma of Which Prediction Tool to Use in Patient Counseling*

Carvell T. Nguyen, MD, PhD¹ and Michael W. Kattan, PhD² Cancer July 1, 2009

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