

PROSTATE-SPECIFIC ANTIGEN (PSA) SCREENING – CURRENT VIEWS 2010
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Median PSA

Median PSA levels in men without prostate cancer (1,2,3):

Age	Median PSA in men <u>without</u> prostate cancer
40 to 49 years	0.7 ng/ml
50 to 59 years	0.9 ng/ml
60 to 69 years	1.2 ng/ml
≥70years	1.5 ng/ml

Any PSA level above the Median PSA may be an indication of early prostate cancer.

PSA velocity (PSAV)

PSA velocity = yearly change in PSA expressed in ng/ml/year

Calculation of PSAV: $[(PSA\ 2 - PSA\ 1) / (\text{months between PSA 1 and PSA 2})] \times 12$

Age-adjusted PSA velocity threshold values (4):

Age	PSA velocity threshold
40 to 59 years	0.25 ng/ml/year
60 to 69 years	0.50 ng/ml/year
≥70years	0.75 ng/ml/year

To correctly measure PSAV, it is recommended to use at least three PSA values over a time period of at least 18 months.

Age-specific PSA

PSA threshold for recommending 6 monthly monitoring or referral for further evaluation:

Age	Calculation (Median PSA+2 x PSAV)	PSA threshold	PSA Double median
40 to 49 years	$>0.7 + 0.25 + 0.25$	$>1.2\ \text{ng/ml}$	1.4
50 to 59 years	$>0.9 + 0.25 + 0.25$	$>1.4\ \text{ng/ml}$	1.8
60 to 69 years	$>1.2 + 0.50 + 0.50$	$>2.2\ \text{ng/ml}$	2.4
70 to 75 years	$>1.5 + 0.75 + 0.75$	$>3.0\ \text{ng/ml}$	3.0

A PSA of double the median is of concern and needs to be closely monitored or referred.

Current recommendations for the use of PSA to diagnose prostate cancer at an early stage in patients who have a normal DRE and where prostatitis is excluded:

Do PSA at age 40 (Age 35 if there is a family history of prostate cancer at age <60).

Further testing will depend on PSA level: Possible suggestion:

PSA level	Action
<0.6 ng/ml	Low cancer risk (6.6%). Further testing every one to ? five years.
0.6 to 1 ng/ml	Cancer risk 10%. PSA test every one to ? two years
1.1 to 2.4 ng/ml	Cancer risk +/- 17-23%. PSA testing every six to twelve months
≥2.5 ng/ml	Immediate referral for possible prostate biopsy

If two subsequent PSA tests confirm an increase of more than the PSA velocity threshold (0.25 – 0.35 ng/ml/year), the patient should be referred for further investigation and possible prostate biopsy.

A suspicious digital rectal examination at any PSA level should be referred even with a normal PSA as there is no “safe” PSA level where cancer is excluded. Some of the highly malignant cancers produce little or no PSA.