

Advances in Genomics and Bioinformatics

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Personal Genome Sequencing is Here



Dan Stoicescu pays
Knome, Inc.
\$350,000 to
sequence his
genome.

“I’d rather spend my money on my
genome than a Bentley.”

NY Times, Tuesday, March 4, 2008

How can genetic information help Ms A?



- Caucasian
- aged 69 yrs
- hypertensive
- FH of breast cancer & ischemic stroke
- bone mineral density 2 SDs below mean for her age

Should she take:
Raloxifene?
Bisphosphonate?
Neither?

How can genetic information help Mr. B?



- African-American
- aged 49 yrs
- No FH of prostate cancer

Should he receive DRE/PSA screening for prostate cancer?

How can genetic information help Ms C?



- Caucasian
- Age: 23 yrs
- Diagnosed with Hodgkins lymphoma
- FH of breast cancer

Should she undergo chest irradiation?

Ms. A's 10-Yr Outcome Probabilities

	Risk Factors	Risk (%)
Stroke	age, SBP, HPTN meds, diabetes, atrial fibrillation, left ventricular hypertrophy	8.5 ^a
Breast Cancer	age, age at menarche, age at first birth, hx breast biopsy, # FDRs with breast cancer	13.0 ^b
Fracture	age, ht, weight, family and personal fracture hx, BMD	51.0 ^c

a) Average of 9.2% (Wolf et al Stroke 1991) and 7.8% (Truelsen et al Stroke 1995)

b) Gail et al JNCI 1989

c) Cummings et al JAMA 1998

Ms. A's 10-Yr Outcome Probabilities (%)

	Bisphosphonate	Raloxifene	Neither
Stroke	8.5 ^a	12.8 ^b	8.5 ^a
Breast Cancer	13.0 ^c	6.5 ^b	13.0 ^c
Vertebral Fracture	25.0 ^d	35.0 ^b	51.0 ^d

a) Wolf et al Stroke 1991 (Truelsen et al Stroke 1995)

b) Barrett-Connor et al, NEJM 2007

c) Gail et al JNCI 1989

d) Cummings et al JAMA 1998

The Bay Area is a world leader in
genomics, bioinformatics and
biostatistics

The challenges are great
The opportunities are great