

Population Health Support Division

Integrity - Service - Excellence

Cardiovascular Risk Assessment and Management (CRAM) in Primary Care



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Overview

- **Epidemiology of coronary heart disease (CHD)**
- **CRAM Project description**
- **Illustration of automated risk score**
- **Six month data review**



Acronyms Used & Explanations

- **CHD** = Coronary Heart Disease
 - **10 YR CHD Risk** = Likelihood of developing any CHD outcome in 10 years (expressed as %)
 - **CRAM** = Cardiovascular Risk Assessment and Management
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Epidemiology of CVD

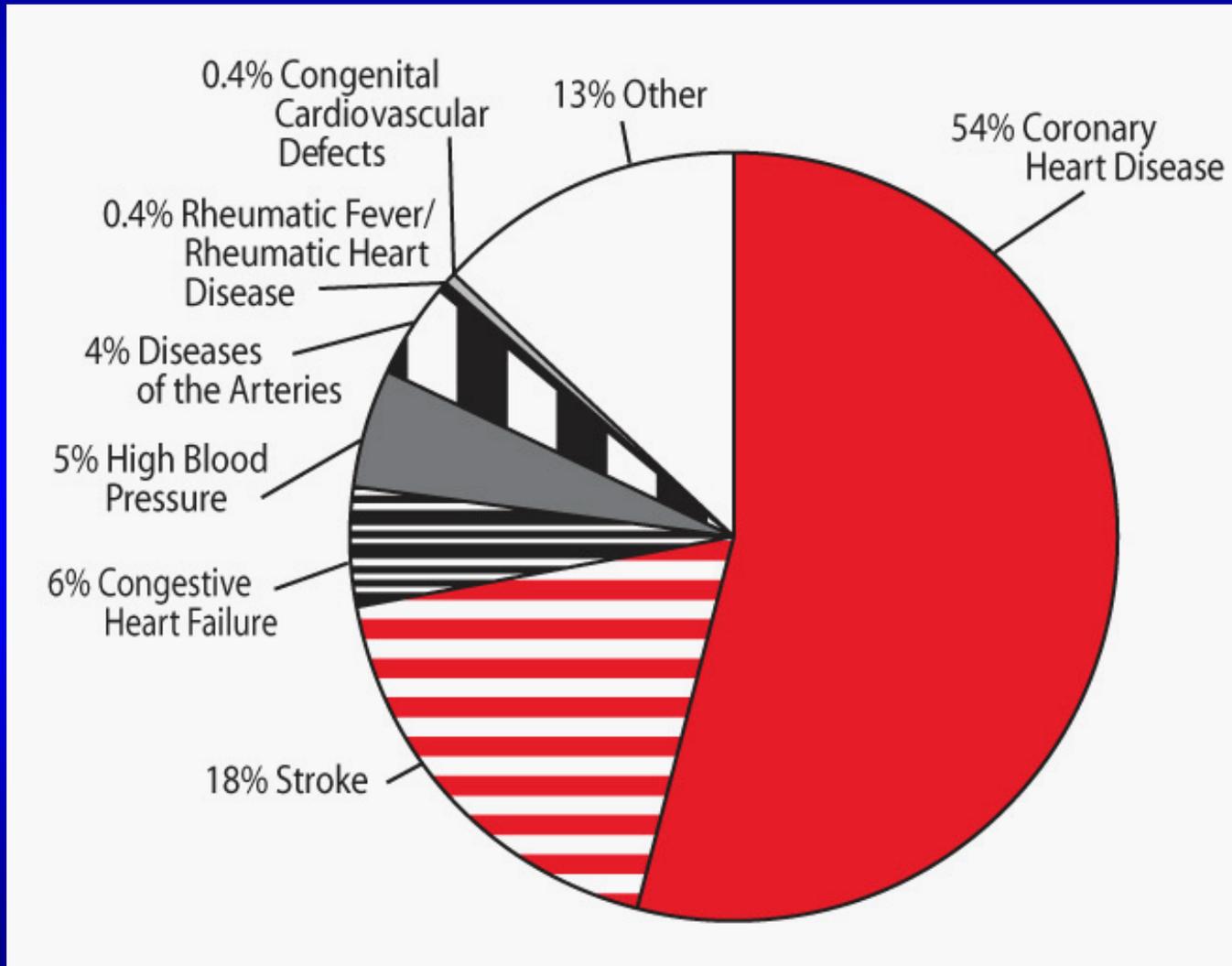
- **CVD - #1 cause of death in US adults (950K/yr)**
 - 12.6M people in US have CHD; 200K have fatal MIs per year*
 - Leading cause permanent disability in US workers γ
 - \$351B direct & indirect health care costs in US in 2003 γ
 - 19.2% AD Army with coronary artery calcification by CT $+$
- **Non-modifiable** risk factors
 - Age, gender, family history
- **Modifiable** risk factors
 - Obesity (now assessed via abdominal circumference), smoking, sedentary lifestyle, HTN, DM

Sources: * NHLBI γ CDC + *J Am Coll Card*, Jan 2003

AHA's 2004 updated CHD/DVD stats: <http://www.americanheart.org/presenter.jhtml?identifier=1200026>

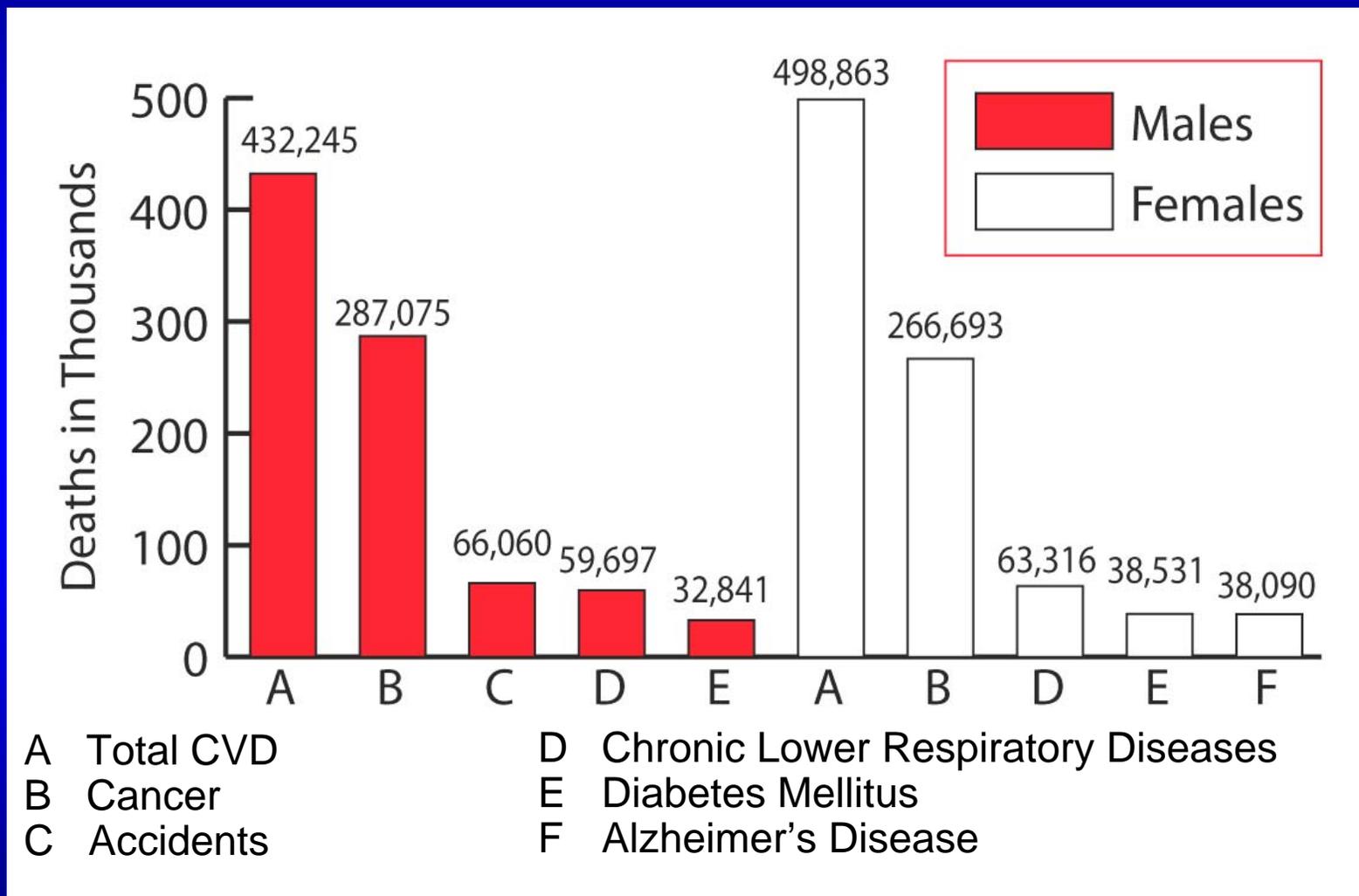
Percentage Breakdown of Deaths from Cardiovascular Diseases

United States: 2001



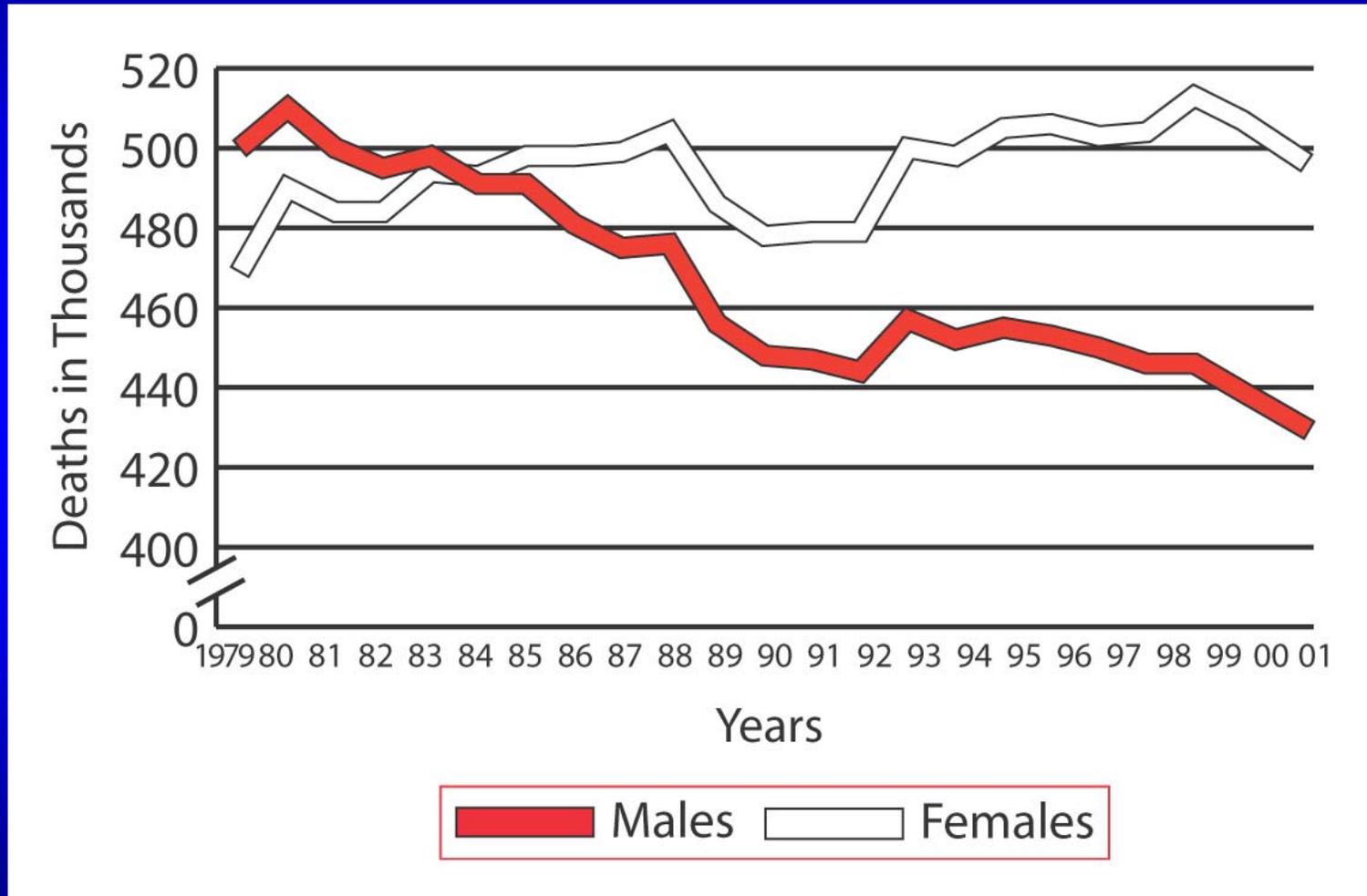
Leading Causes of Death for All Males and Females

United States: 2001



Cardiovascular Disease Mortality Trends for Males and Females

United States: 1979-2001



What we know about ADAF now:

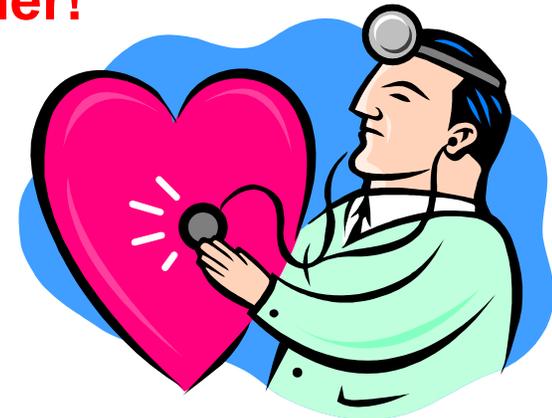
- **Mortality database review: 1981-2002**
 - 27 ADAF deaths related to physical activity
 - 5 had abnormal valves, infection, or RVH
 - 9 with documented CAD; none during fitness testing
 - Most during / after leisure exercise or yard work
- **Risk of sudden event during exercise low:**
 - BMTs – risk of 11 deaths per 100K recruit years*
 - Exercise-related death in middle aged men 6 per 100K ^γ
 - Exercise decreases risk of death overall
- **5% of ADAF in moderate and high categories (partial data – may be more)**

* DoD Recruit Mortality Registry

^γ AHA/ACSM Scientific Statement

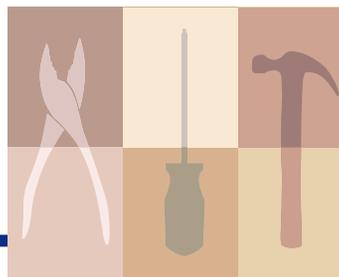
Why CRAM ?

- **SGPs & PCMs are *responsible***: Sections 1.17, 1.24, and Chapter 4 in AFI 10-248
- **Five percent (5%) of ADAF have **Moderate** or **High** 10 yr CHD risk – approx **18K!****
 - CHD Risk factors not being optimally managed in the US
 - HTN, CHD, DM all increasing; **CVD #1 Killer!**
- **Improve MTF staff **efficiency**:**
 - Reduce lengthy chart review
 - No hand calculation of CHD risk needed



Goal of CRAM Project

- **Improve the early identification, care prioritization, and management of ADAF at moderate or high risk for developing CHD using:**
 - provider education
 - evidence-based practice guideline toolkits
 - automated CHD Risk available through PIMR



Pearls/Goals:

- Reinforce good CHD histories & physicals
 - Those with premature CHD frequently have a **NORMAL** exam
 - Order appropriate labs & begin lifestyle modifications
 - ASA therapy for patients with a risk $\geq 6\%$
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Framingham Risk Score

- One tool to assess CHD in **asymptomatic** patients
 - Includes some modifiable and non-modifiable risk factors
 - **NOT** included: obesity, family history, sedentary lifestyle
 - Point total used to determine risk:
 - **LOW** = 10-yr CHD risk <10%
 - **MODERATE** = 10-yr CHD risk 10-20%
 - **HIGH** = 10-yr CHD risk > 20%
 - Absolute and comparative risks are given
-

Individual People

- HRR
- Dental
- Shots
- Lab
- DLC / 422
- Med Equip
- PHY
- CPS / CHD**
- OH
- HEHP
- GM
- Fitness
- Deploy
- Demog
- Reasons

People

Find
 SSAN Name

DOB [] AGE 40 DAS 12/20/2002 PASCODE [] ASC []
Duty Status Code 00 DS Date 03/06/2004
CPT Sex M DAFSC []
PCM COSTELLO,BRIAN L
PCE PRIMARY CARE
MTF ANY :AFB

IMR **HRR** **IMM** **DLC** **OH** **CPS**
DEN **LAB** **EQP** **GM** **FIT**

Refresh Query Filter

Clinical Preventive Services Recommendations

CPS Recommendations

SBP	101	05/30/2003
DBP	63	05/30/2003
Smoking		
DM		

10 Year Coronary Heart Disease Risk

Tot Chol	177	05/30/2003
HDL	54	05/30/2003
LDL	109	05/30/2003

CHD Risk Assessment Using Framingham Risk Score (FRS)

1.33 %

This is the absolute patient risk of developing CHD in the next 10 years

Data source: Vitals PIMR, labs CHCS, and is updated monthly.
Data as of 07/21/2004

Interpretation of CHD Risk:
Risk of developing Coronary heart disease (CHD) in 10 years
Low 0 - 9%
Moderate 10 - 20%
High > 20%

FRS is calculated based on gender, age, SBP, Tot Cholesterol, HDL, diabetes, and smoking status
<http://www.acc.org/clinical/consensus/risk/dirindex.htm>

k<< << >> >> 1307 Add OH Add HEHP Add GM Edit Save Cancel Exit

CPS Recommendations

SBP	140	08/28/2003
DBP	74	08/28/2003
Smoking		
DM		

CHD Risk Assessment Using Framingham Risk Score (FRS)

13.55 %

This is the absolute patient risk of developing CHD in the next 10 years

10 Year Coronary Heart Disease Risk

Tot Chol	239	05/05/2004
HDL	27	05/05/2004
LDL	151	05/05/2004

Interpretation of CHD Risk:

Risk of developing Coronary heart disease (CHD) in 10 years

Low 0 - 9%
Moderate 10 - 20%
High > 20%

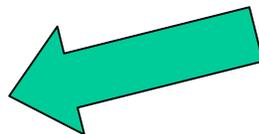
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<http://www.acc.org/clinical/consensus/risk/dirindex.htm>

Data source: Vitals PIMR, labs CHCS, and is updated monthly.

Date created 07/21/2004

- + Aggregate
- + Individual
- + Charts
- + PHY
- + CPS
- + OH
- + HEHP
- + GM
- + Contact Lens
- + Rosters
- + Profiles
- + Deployment
- + Admin
- Excel Data Exports
 - Individual
 - Coronary Heart Disease Risk
 - + Personnel Deployment Listing
 - Duty Limitation Codes
 - + AF422 Log
 - Date of Birth Listing
 - HEHP Due / Overdue Listing
 - + Multi-page Report, Unit Summary
 - + Medical Status Report
 - Create Medical Status Files
 - Create Due/Overdue Files



With ssan's
 Last 4 only

PIMR Reports

Print Preview

To XLS File

To PDF File

Export to \asims\pimr\reports folder

Report List

Exit

Select Personnel

From A Deployment

xlsCram

Coronary Heart Disease Risk

PIMR Report – Left Side of Sheet

	SSAN	Rank	Last Name	First Name	Middle Name	10 Year CHD Risk	DOB	Age	Sex
1									
2	Data As Of: 07/21/2004								
3	Color alerts are for low risk patients; high risk patients may have lower treatment thresholds.								
4	111-11-1111	MSG	DOE	JOHN	N	16.66	02/20/1963	41.28	M
5	222-22-2222	TSG	DANDY	JIM	S	8.91	01/13/1961	43.38	M
6	333-33-3333	SSG	DOE	JIM	F	8.75	03/14/1971	33.22	M
7	444-44-4444	MSG	DOE	BOB	L	6.84	10/27/1952	51.59	M
8	555-55-5555	LTC	DANDY	RANDY	V	5.88	05/23/1961	43.03	M
9	666-66-6666	TSG	JOLLY	ROGER	R	5.76	08/12/1972	31.80	M
10	777-77-7777	MSG	CHILLY	WILLY	C	4.95	09/07/1966	37.73	M
11	888-88-8888	MSG	YANKEE	DOODLE	L	4.51	11/12/1963	40.55	M
12	999-99-9999	SSG	CHEESE	DOODLE	P	4.35	10/19/1967	36.62	M

PIMR Report (continued)

1	SBP	DBP	BP Date	Smoke	Smoke Date	DM	Tot Chol	Chol Cert Date	HDL	HDL Cert Date
2										
3										
4	132	90	01/06/2004	Y	05/19/2004		280	11/20/2003	34	11/20/2003
5	124	75	01/20/2004				224	01/28/2004	32	01/28/2004
6	134	91	03/04/2004	Y	01/15/2004		273	03/09/2004	37	03/09/2004
7	128	77	08/20/2003				233	09/10/2003	60	09/10/2003
8	140	94	08/12/2003				218	08/13/2003	48	08/13/2003
9	155	92	07/09/2003				176	07/09/2003	24	07/09/2003
10	128	80	08/22/2003	Y	09/15/2003		247	11/20/2003	61	11/20/2003
11	136	81	10/08/2003	N	02/10/2004		224	10/08/2003	50	10/08/2003
12	113	63	06/01/2004	Y	07/23/2003		186	05/25/2004	40	05/25/2004

Six month CRAM Data (Jan-Jun 04)

- **380K ADAF records**
 - **7% without base code/DMIS ID**
 - **0.6% (2311) at Ft Meade**

 - **57% of older patients and 65% of younger, multi-risk patients had “enough” data to calculate CHD risk**
-

Frequency of Risk Levels – Older ADAF

Risk Category	Number	Percent
LOW	51104	93.7%
MODERATE	3286	6.0%
HIGH	126	0.2%

Valid N = 54516

In Jan 04, 8.3% of this group were moderate or high risk

Frequency of Risk Levels –Young, X-risk

Risk Category	Number	Percent
LOW	9901	99.2%
MODERATE	80	0.8%
HIGH	4	>0.1%

Valid N = 9985

In Jan 04, 1.4% of this group were moderate or high risk

How Are We Doing with Risk Reduction*?

- Although statistically significant ($p < 0.05$) changes have occurred in SBP, DBP, TC, and HDL, they are *clinically insignificant*

Risk	Jan	Jun	Δ	z
SBP	124.48	124.17	0.31	8.78
DBP	75.15	75.07	0.08	3.08
TC	184.61	184.31	0.30	2.85
HDL	49.60	49.61	-0.01	2.19

* Overall data, not stratified by age or gender

RR stratified by Age and Gender

- **Similar findings to overall data**
 - **All four variables decreased/increased by < 1%**
 - **Exception: SBP ↑ by 1.8% in older F ***
 - **Others not statistically tested (dirty data)**

* P < 0.05, z = -2.67

Conclusions

- **Real data is not clean or complete**
 - **Better job needed documenting those factors governed by regulation/good practice**
 - **Confounders and short time interval may have reduced possible effect**
 - **Program has potential to fill gaps and improve efficiency in CHD risk id & mgmt**
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Future CRAM

- **Compare data over time to see if improving**
 - **Spin-off Studies (“Son of CRAM”)**
 - **HTN prevalence and treatment**
 - **Dyslipidemia prevalence and treatment**
 - **Studies linked to fitness data?**
 - **Continue educational activities**
 - **Periodic tool kit CPG updates/revisions**
 - **Currency of CPGs; add shared decision making**
 - **Expansion to more high risk beneficiaries**
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Questions?
