Spinal Cord Injury Preventive Health Care: Identifying the Evidence

Margaret M. Browning, Ph.D., Eileen G. Collins, Ph.D., W. Edwin Langbein, Ph.D., Frances M. Weaver, Ph.D., Margaret C. Hammond, M.D.

Spinal Cord Injury Quality Enhancement Research Initiative
Hines VA Hospital, Hines, IL
VA Puget Sound Health Care System, Seattle, WA

http://www.sci-queri.research.med.va.gov/

OBJECTIVE

The objective of this study was to identify the empirical evidence currently available to support the 33 preventive procedures recommended in the Veterans Administration's (VA) Annual Exam for persons with spinal cord injury (SCI) (see reference in handout).

METHODS

Three resources were used to accomplish the study objectives: (i) the Report of the U.S. Preventive Services Task Force (USPSTF); (ii) the Clinical Practice Guidelines published by the Consortium for Spinal Cord Medicine (CSCM); and (iii) MEDLINE, when screening procedures recommended in the VA's Annual Exam were not cited in one of the first two sources (see list of references in handout).

U.S. Preventive Services Task Force

Quality of evidence is graded by USPSTF on five levels and the following recommendations are made **for inclusion or exclusion** of a preventive intervention in a periodic health examination.

A There is *good evidence* **for inclusion**.

B There is *fair evidence* **for inclusion**.

C There is *insufficient evidence* **for or against inclusion**, but recommendations may be made on other grounds.

D There is *fair evidence* **for exclusion**.

E There is *good evidence* **for exclusion**.

Consortium for Spinal Cord Medicine Clinical Practice Guidelines

CSCM only makes recommendations **to include** interventions, based on the following graded levels of evidence.

I Large randomized trials with clear-cut results (and low risk of error)

II Small randomized trials with uncertain results (and moderate to high risk of error)

III Nonrandomized trials with concurrent or contemporaneous controls

IV Nonrandomized trials with historical controls

V Case series with no controls

MEDLINE

A MEDLINE search was conducted for preventive procedures not cited by USPSTF or CSCM. This MEDLINE search was limited in two respects: (i) decisions were not based on the review of an expert panel; (ii) it was not exhaustive. Results were categorized as follows:

1 There is literature to support **inclusion**.

2 There is literature supporting **both inclusion and exclusion**.

3 There is literature to support **exclusion**.

RESULTS

The 33 preventive procedures recommended in the VA's Annual Exam for persons with SCI are conceptually grouped in the tables below, along with the empirical evidence found to support their inclusion (or exclusion) in a periodic health examination. The following key is used to identify whether the evidence pertains to the able-bodied population or the population of persons with SCI. All references are included in the handout.

Able-bodied population [USPSTF]

SCI population [CSCM; MEDLINE]

Medical History and Physical Exam

Item	Strength of Evidence
Sensory and motor level reflex functions	CSCM *Outcomes* **V** [After neurological plateau has been reached, conduct periodic evaluations of neurological status throughout the individual's lifetime.]
Skeletal Changes	MEDLINE **1** [Kocina P, 1997]
ADL function changes (use of the FIM recommended)	CSCM *Outcomes* **III/V** [After achievement of functional goals, conduct periodic evaluations of functional status throughout the individual's lifetime.]
Skin Integrity	MEDLINE **1** [Garber SL et al., 2000; Garber SL et al., 1996]
Cardiovascular assessment	USPSTF **A** for hypertension [recommendation for periodic screening for all persons ≥ 21 yr]
Pulmonary function	MEDLINE **1** [Roth EJ et al., 1995; Bluechardt MH et al., 1992]
Digital rectal exam	USPSTF **C** for colorectal cancer; **D** for prostate cancer
Stool for occult blood	USPSTF **B** for colorectal cancer

General Medical Tests

Item	Strength of Evidence
Chest X-ray (as indicated)	USPSTF **D** for lung cancer [lacks sufficient accuracy to be used in routine screening of asymptomatic persons]
Electrocardiogram (when indicated)	USPSTF **C** for asymptomatic coronary heart disease
CBC and chemical profile (including lipids) (UA C/S to include acid phosphatas/prostatic specific antigen for patients over age 40 yr)	USPSTF **B** for high blood cholesterol [periodic screening for all men ages 35-65 and women ages 45-65; appropriate interval not known]; **D** for prostate cancer with PSA[sensitivity and specificity cannot be determined with certainty]
Rectosigmoidoscopy (over age 40 yr)/colonoscopy (when indicated)	USPSTF **B** for sigmoidoscopy [persons ≥ 50 yr]; **C** for colonoscopy
Abdominal sonogram	USPSTF **C** for abdominal aortic aneurysms
Tonometry	USPSTF **C** for glaucoma

Urinary Tract Evaluation

Item	Strength of Evidence
Creatinine clearance	MEDLINE **2** [MacDiarmid SA et al., 2000; Mohler JL et al., 1988]
Urinary cytology	USPSTF **D** for bladder cancer
Renal sonogram	MEDLINE **1** [Bodner DR et al., 1990]
Computerized renal scan	MEDLINE **1** [Kuhlemeier KV et al., 1985; Kuhlemeier KV et al., 1984]
Intravenous pyelogram (when indicated)	MEDLINE **3** [Bodner DR et al.,1990; Kuhlemeier KV et al., 1985; Kuhlemeier KV et al., 1984]
Cystoscopy with biopsy (especially in patients with indwelling catheters)	MEDLINE **2** [Yang CC, Clowers DE, 1999; Navon JD et al., 1997]
Urodynamics (every 3 yr or more frequently if indicated)	MEDLINE **1** [Weld KJ, Dmochowski RR, 2000]

Gender Specific Exam for Female SCI Veterans

Item	Strength of Evidence
Pelvic Exam	USPSTF **D** for ovarian cancer; **B** for chlamydial infection [for women at high risk]
Pap Smear	USPSTF **A** [for all women who are or have been sexually active]; **B** recommendation for at least every 3 yr
Breast Exam	USPSTF **C** [for clinical breast exam alone for women 50-69 yr]
Mammogram	USPSTF **A** [women aged 50-69 yr]

Functional and Other Evaluations

Item	Strength of Evidence
Psychosocial assessment (including vocational rehabilitation potential/readiness and sexuality)	CSCM *Outcomes* **III/V** [Facilitate opportunities for optimal quality of life within the full continuum of health-care and rehabilitation programs.]
Rehabilitation evaluation (including changes due to aging)	CSCM *Outcomes* **III/V** [After achievement of functional goals, conduct periodic evaluations of functional status throughout the individual's lifetime.]
Dental evaluation	USPSTF **B** to counsel patients to visit a dental provider on a regular basis
Dietary/nutritional assessment	USPSTF **B** for various dietary items, e.g., limiting intake of dietary fat and cholesterol, emphasizing fruits, vegetables and grains, etc.

Health Promotions

Item	Strength of Evidence
Immunization (pneumovax once, influenza)	USPSTF **B** for influenza [annually for all persons ≥ 65 and certain at-risk categories]; **B** for pneumococcal disease [once for all immunocompetent persons ≥ 65 yr and others at increased risk]
Anti-smoking information	USPSTF **A**
Substance abuse screening/counseling	USPSTF **B** for alcohol; **C** for drugs
PPD	USPSTF **A** [for all persons at increased risk of developing TB]

CONCLUSIONS

The health-related complications secondary to SCI are multifactorial and present an array of challenges to successful preventive medicine. To build an evidence base for SCI preventive health care, there is much work to be done. While USPSTF is a beginning, even these recommendations require further empirical examination to determine their appropriateness for persons with SCI. So far CSCM has published five clinical practice guidelines (see list of references in handout), but only one of these is relevant to preventive care *(Outcomes Following Traumatic Spinal Cord Injury: Clinical Practice Guidelines for Health-Care Professionals*). A new guideline from CSCM on pressure ulcer prevention and management will be available at the end of summer 2000 and the development of a guideline on the annual exam is underway, however the Panel will be burdened by the limited empirical evidence currently available. Funding for research to establish the effectiveness of SCI preventive medicine should be a high priority.

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