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## Online Supplementary Material

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## Supplemental Appendix. Prostate Cancer Screening–Shared Decision-Making Scale

### Items

1. The physician discusses the prostate cancer epidemiology with the patient.[a]
   a. The physician discusses incidence or prevalence of prostate cancer with patient.
   b. The physician discusses risk factors for developing prostate cancer with the patient.
   c. The physician discusses natural history of prostate cancer.
   d. The physician discusses prostate cancer mortality information with the patient.
2. The physician asks the patient about the patient's prior personal experiences with prostate cancer or prostate cancer screening.[a]
   a. The physician asks the patient's own prior personal experience with prostate cancer or prostate cancer screening.
   b. The physician asks the patient about any family history of prostate cancer.
   c. The physician asks the patient about any other *indirect* prior personal experience with prostate cancer.
3. The physician asks the patient about the patient's knowledge of prostate cancer or prostate cancer screening.[a]
4. The physician solicits the patient's concerns about having prostate cancer.[a]
5. The physician explicitly informs the patient that there are controversies over prostate cancer screening.[a]
6. The physician explains pros and cons of PSA screening.[b,c]
   a. The physician describes the potential immediate and/or downstream benefits of doing the PSA screening tests.
   b. The physician discusses problems with accuracy of PSA testing or other screening tests.
   c. The physician discusses other immediate and/or downstream drawbacks of PSA screening.
7. The physician discusses more than one prostate cancer screening options.[b,c]
   a. The physician mentioned rectal examination as an alternative screening option.
   b. The physician mentioned watchful waiting/no screening as an alternative screening option.
8. The physician describes the pros and cons of rectal examination.[c]
   a. The physician describes the potential immediate and/or downstream benefits of rectal examination.
   b. The physician describes the potential immediate and/or downstream drawbacks of rectal examination.
9. The physician describes the pros and cons of watchful waiting/no screening.[c]
   a. The physician describes the potential immediate and/or downstream benefits of watchful waiting/no screening.
   b. The physician describes the potential immediate and/or downstream drawbacks of watchful waiting/no screening.
10. The physician solicits the patient's concerns over having side effects of screening or subsequent tests and treatment.[c]
11. The physician provides patient with information about next steps of prostate cancer screening.[a]
    a. The physician informs patient of what would be done if the PSA test was abnormal.
    b. The physician discusses what would be done if the PSA test is normal.
12. The physician offers the patient explicit opportunities to ask questions during the decision-making process.[c]
13. The physician explicitly checks if the patient has understood the information.[c]
14. The physician discusses the patient's role in decision making.[c]


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a. The physician informs the patient of shared decision making or explains why the doctor needs to have this discussion.
b. The physician elicits the patient's preferred level of involvement in decision making.

15. The physician assesses the patient's preferred approach to receiving information to assist decision making.[c]
16. The physician explains to the patient that the screening decision needs to be made based on the patient's values.[b]
17. The physician indicates the need for a decision making (or deferring) stage.[b,c]
    a. The physician tells patient to think about the options before deciding, even deferring the decision to another visit.
    b. The physician asks the patient about his/her decision about prostate cancer screening
    c. The physician encourages the patient to seek input from others.
18. The physician offers to provide additional information to help patient make an informed decision.[a]

PSA = prostate-specific antigen.
[a] Items created by the authors based on the intervention tutorials and brochures from the Centers for Disease Control and Prevention on shared decision making and prostate cancer screening used in the current study.
[b] Items adapted from the Kaplan scale.
[c] Items adapted from the OPTION scale.


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**Supplemental Table 1. Primary Care Physician Behaviors in Provision of Information Around Prostate Cancer or Prostate Cancer Screening**

| Provision of Information | Overall (N = 118) % | Control (n = 57) % | Intervention A (n = 33) % | Intervention B (n = 28) % |
|---|---|---|---|---|
| 1. Discusses incidence or prevalence of prostate cancer | 44 | 46 | 48 | 36 |
| 2. Discusses risk factors for prostate cancer | 45 | 37 | 55 | 50 |
| 3. Discusses natural history of prostate cancer | 53 | 51 | 55 | 54 |
| 4. Discusses mortality of prostate cancer | 61 | 53 | 70 | 68 |
| 5. Discusses controversies of prostate cancer screening | 49 | 39 | 64 | 54 |
| 6. Discusses benefits of PSA testing | 87 | 88 | 85 | 89 |
| 7. Discusses problems with accuracy of prostate cancer screening | 91 | 88 | 91 | 96 |
| 8. Discusses other drawbacks of PSA testing | 70 | 60[a] | 79[b] | 82[b] |
| 9. Mentions no screening as an alternative | 45 | 26[a] | 64[b] | 61[b] |
| 10. Mentions rectal examination as an alternative | 87 | 93 | 76 | 89 |
| 11. Discusses benefits of rectal examination | 58 | 63 | 45 | 64 |
| 12. Discusses drawbacks of rectal examination | 34 | 32 | 39 | 32 |
| 13. Discusses benefits of watchful waiting/no screening | 31 | 21 | 36 | 46 |
| 14. Discusses drawbacks of watchful waiting/no screening | 31 | 32 | 24 | 36 |
| 15. Informs next steps following abnormal PSA level | 78 | 70 | 82 | 89 |
| 16. Informs next steps following normal PSA level | 24 | 26 | 15 | 29 |

PSA = prostate specific antigen.

Note: Percentage of physicians who provided information about around prostate cancer or prostate cancer screening, at least once during an unannounced standardized patient visit.

[a,b] Within each row, percentages having different superscript letters differ statistically significantly from each other at $P < .05$; percentages having the same or without superscript letters do not differ statistically from others.


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**Supplemental Table 2. Primary Care Physician Behaviors in Eliciting Patients' Perspectives About Prostate Cancer or Prostate Cancer Screening**

| Elicitation of Patient Perspectives | Overall (N = 118) % | Control (n = 57) % | Intervention A (n = 33) % | Intervention B (n = 28) % |
|---|---|---|---|---|
| 1. Asks about patient's direct prior experience | 46 | 53 | 42 | 36 |
| 2. Asks about patient's family history | 47 | 40 | 61 | 46 |
| 3. Asks about patient's indirect personal experience | 8 | 2[a] | 6[a] | 25[b] |
| 4. Asks about patient's knowledge | 3 | 0 | 3 | 7 |
| 5. Asks about patient's concerns about having prostate cancer screening | 7 | 2[a] | 15[b] | 7 |
| 6. Solicits concerns about having side effects from test or treatment | 3 | 0[a] | 12[b] | 0[a] |
| 7. Offers opportunities to ask questions | 13 | 12 | 15 | 11 |
| 8. Checks patient's understanding of information | 25 | 19 | 33 | 25 |
| 9. Explains why shared decision making was necessary for prostate cancer screening | 28 | 21 | 36 | 32 |
| 10. Elicits preferred level of involvement in decisions | 0 | 0 | 0 | 0 |
| 11. Assesses patient's information receipt preferences | 0 | 0 | 0 | 0 |
| 12. Asks patient about his decision | 34 | 28 | 42 | 36 |

Note: Percentage of physicians who inquired about their patient's perspective around prostate cancer or prostate cancer screening at least once during an unannounced standardized patient visit.

[a,b] Within each row, percentages having different superscript letters differ statistically significantly from each other at $P < .05$; percentages having the same or without superscript letters do not differ statistically from others.


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**Supplemental Table 3. Primary Care Physician Behaviors in Guiding Patient in Final Decision Making around Prostate Cancer Screening**

| Guiding Final Decision | Overall (N = 118) % | Control (n = 57) % | Intervention A (n = 33) % | Intervention B (n = 28) % |
|---|---|---|---|---|
| 1. Indicates that decisions should be based on patient's values | 19 | 11[a] | 27[b] | 29[b] |
| 2. Tells patient to think about options | 51 | 39[a] | 61[b] | 64[b] |
| 3. Encourages patient to seek input from others | 16 | 7[a] | 21[b] | 29[b] |
| 4. Offers to provide additional information | 27 | 18[a] | 42[b] | 29[b] |

Note: Percentage of physicians who provided guidance for final decision making regarding prostate cancer screening at least once during an unannounced standardized patient visit.
[a,b] Within each row, percentages having different superscript letters differ statistically significantly from each other at $P < .05$; percentages having the same or without superscript letters do not differ statistically from others.


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**Supplemental Table 4. Summary of Primary Care Physician Behaviors in Shared Decision Making Around Prostate Cancer or Prostate Cancer Screening**

| Behavior | Range | Overall (N = 118) Mean | Control (n = 57) Mean | Intervention A (n = 33) Mean | Intervention B (n = 28) Mean |
|---|---|---|---|---|---|
| Overall shared decision-making prostate cancer screening score[a] | 0-32 | 12.2 | 10.7[b] | 13.5[c] | 13.5[c] |
| Provision of information[a] | 0-16 | 8.9 | 8.2[b] | 9.3 | 9.8[c] |
| Elicitation of patient's perspectives[a] | 0-12 | 2.1 | 1.8[b] | 2.7[c] | 2.3 |
| Guiding final decision | 0-4 | 1.1 | 0.7[b] | 1.5[c] | 1.5[c] |

Note: Each item in the scale was given a value of 0 = did not occur, or 1 = occurred. Generalized linear mixed model analyses involving outcome variables controlled for health care network, physician site, physician age, sex, and ethnicity.

[a] Comparisons controlled for physician baseline knowledge of prostate cancer and prostate cancer screening.

[b,c] Within each row, group means having different superscript letters differ statistically significantly from each other at $P < .05$; group means having the same or without superscript letters do not differ statistically from others.


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**Supplemental Table 5. Summary of Physician Final Clinical Recommendations About Prostate Cancer Screening After Prompting by Unannounced Standardized Patient**

| Recommendation | Overall (N = 118) % | Control (n = 57) % | Intervention A (n = 33) % | Intervention B (n = 28) % |
|---|---|---|---|---|
| Recommended in favor of prostate cancer screening | 59 | 68 | 52 | 46 |
| Recommended against prostate cancer screening | 16 | 11 | 21 | 22 |
| Made no recommendation | 25 | 21 | 27 | 32 |
| Physician stated that he or she would order a PSA blood test | 45 | 60[a] | 33[b] | 29[b] |

PSA = prostate-specific antigen.

[a,b] Within each row, percentages having different superscript letters differ statistically significantly from each other at $P < .01$; percentages having the same or without superscript letters do not differ statistically from others.


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