**NCI’s Physician Data Query (PDQ®) Cancer Information Summaries:**

**History and Editorial Processes**

**History of PDQ**

In the National Cancer Act of 1971, the Director of the National Cancer Institute (NCI) was required by Congress to:

*Collect, analyze, and disseminate all data useful in the prevention, diagnosis, and treatment of cancer, including the establishment of an International Cancer Research Data Bank* [ICRDB] *to collect, catalog, store, and disseminate insofar as feasible the results of cancer research undertaken in any country for the use of any person involved in cancer research in any country.*

Subsequent legislation reinforced NCI’s requirement to maintain the ICRDB. Moreover, Congress expanded the scope of NCI’s information dissemination activities to include physicians and other healthcare professionals, patients and their families, and the general public in addition to cancer researchers. Specifically, the current Public Health Service Act, as amended in 1996, requires the NCI Director to:

 *...provide public and patient information and education programs, providing information that will help individuals take personal steps to reduce their risk of cancer, to make them aware of early detection techniques and to motivate appropriate utilization of those techniques, to help individuals deal with cancer if it strikes, and to provide information to improve long-term survival...*

*...continue and expand programs to provide physicians and the public with state-of-the-art information on the treatment of particular forms of cancers, and to identify those clinical trials that might benefit patients while advancing knowledge of cancer treatment...*

NCI’s initial response to these legislative requirements was to create a database of cancer clinical trials supported by the Institute. This database, called CLINPROT (Clinical Protocols), was launched in 1974. In 1980, to assist physicians in deciding whether an established treatment approach or a clinical trial would be most appropriate for a specific patient, NCI assembled an editorial board to develop state-of-the-art treatment information summaries. In developing these summaries, the editorial board solicited input from expert consultants representing all treatment modalities. At the time, NCI designed a process to reflect a consensus of professional opinion. The treatment summaries and CLINPROT were the initial information products included in the ICRDB.

In 1982, the ICRDB was renamed Physician Data Query (PDQ®) and the treatment summaries and clinical trial protocols were made available to physicians who had computers through a dial-up connection to the National Library of Medicine. In 1984, NCI decided to change from a consensus-based approach to a formal evidence-based approach in developing and maintaining the state-of-the-art treatment summaries. Coinciding with this change, the previously assembled editorial board was reconstituted as the “PDQ Editorial Board.” In 1987, a separate Pediatric Treatment Editorial Board was formed, and the original PDQ Editorial Board was renamed the [Adult Treatment Editorial Board](http://www.cancer.gov/cancertopics/pdq/adult-treatment-board). In 1991, the [Screening and Prevention Editorial Board](http://www.cancer.gov/cancertopics/pdq/screening-prevention-board) was established, followed in 1992 by the Supportive Care Editorial Board (now called the [Supportive and Palliative Care Editorial Board](http://www.cancer.gov/cancertopics/pdq/supportive-care-board)). The remaining two PDQ Editorial Boards, the [Cancer Genetics Editorial Board](http://www.cancer.gov/cancertopics/pdq/cancer-genetics-board) and the [Cancer Complementary and Alternative Medicine Editorial Board](http://www.cancer.gov/cancertopics/pdq/cancer-cam-board), were created in 1998 and 2001, respectively. In 1995, PDQ information was made available on the Internet through NCI’s CancerNet website. In 2002, PDQ was made available on NCI’s main website, Cancer.gov, when CancerNet was subsumed into the main site.

**The PDQ Editorial Boards**

The PDQ Editorial Boards are comprised of specialists in oncology and numerous other biomedical disciplines. The Boards range in size from about 15 to 30 members. Overall, approximately 85 percent of Board members are drawn from the private sector and 15 percent are federal government employees. Each PDQ Editorial Board has an Editor-in-Chief and a Board Manager, who coordinates the activities of the Board. Historically, the Director of NCI has appointed the Editor-in-Chief of the Adult Treatment Editorial Board, and the Editor-in-Chief of the Adult Treatment Board has appointed the Editors-in-Chief of the remaining Boards. Each Editor-in-Chief selects the members of his or her own Board. Board members serve 1- to 2- year terms, which are renewable indefinitely, at the discretion of the selecting official. Board members are required to complete a conflict-of-interest certification.

The PDQ Editorial Boards meet four to eight times a year, and members can participate in person, by teleconferencing, by videoconferencing, or by WebEx™. Board meetings range from 2-hour meetings to 2-day retreats. In addition to regular Board meetings, several PDQ Boards have working groups that meet more frequently. Non-government Board members receive a $200 honorarium for meeting participation and their travel and lodging expenses are reimbursed by the government. Government Board members receive no compensation or reimbursements; their participation in PDQ-related activities is considered part of their official duties.

The PDQ Editorial Boards regularly review published results of cancer research conducted around the world (*see* Literature Surveillance), assess the strength of the evidence to support the use of specific cancer-related interventions (*see* Evidence Assessments), and then summarize their findings (*see* Summary Development and Maintenance). Interventions are classified as either standard (i.e., supported by evidence in the medical literature and used commonly in the clinic) or supported only by very weak evidence and often still under clinical evaluation.

In developing and maintaining the state-of-the-art cancer information summaries, the PDQ Editorial Boards are editorially independent of NCI. The Institute supports but does not intervene in PDQ editorial processes.

The PDQ Editorial Boards do not function as formal NCI advisory boards, and they do not formulate policy for the Institute. In addition, the PDQ Editorial Boards do not develop practice guidelines or make clinical recommendations.

**PDQ Editorial Processes**

**Literature Surveillance**

**Overview**

The PDQ Editorial Boards conduct regular reviews of the peer-reviewed biomedical literature to maintain the currency of the PDQ cancer information summaries. At the heart of this process is a set of monthly searches of the National Library of Medicine’s PubMed database. These searches yield a pool of citations that is screened to identify research studies of greatest relevance to each PDQ Editorial Board. An electronic tool, called the Citation Management System (CiteMS), facilitates this process.

Individual steps of the PDQ literature surveillance process are outlined immediately below. More detailed information about each step will follow.

**Step 1:** Monthly searches of the PubMed database are conducted by medical librarians using predefined search criteria.

**Step 2:** The search results are imported into a staging database, where the medical librarians review the retrieved citations for relevance and assign a cancer information summary topic name to relevant citations.

**Step 3:** The refined search results are published to the CiteMS, and the PDQ Editorial Board Managers and other NCI staff are notified via e-mail that new citations (in abstract form) are available for review.

 **Step 4:** The Board Managers and other NCI staff review the citation abstracts in the CiteMS and make recommendations about which citations should be submitted to a PDQ Editorial Board(s) for review. If a recommendation cannot be made based on the information in an abstract alone, full-text articles may be requested for more in-depth review.

 **Step 5:** The PDQ Editorial Board Managers make the final determination about which citations are forwarded (as full-text articles) to the members of their Boards.

**Step 6:** PDQ Editorial Board members review the full-text articles and make decisions about whether or not the articles should be cited in one or more PDQ information summaries or be reviewed in detail at an Editorial Board meeting.

**Step 7:** Final decisions about all citations reviewed by PDQ Editorial Board members (to cite or not cite in a PDQ summary) are recorded in the CiteMS.

The literature surveillance process includes several levels of quality control to ensure that the search strategies are effective and up-to-date, that the search results are as relevant and as precise as possible, and that the process of importing citations from PubMed and publishing them to the CiteMS is accurate and efficient.

The following table shows the number of citations processed and reviewed at each step during calendar year 2010.

**Table 1. Citations Processed and Reviewed in PDQ Literature Surveillance: 2010.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step in Process** | **Total Citations** | **Citations/month**  | **Percentages**  |
| **Step 1:** Citations retrieved  | 27,096  | 2,258  |  |
| **Step 2:** Citations rejected by contractor librarians  | 11,097  |  925  |  |
| **Step 3:** Citations published to CiteMS\*  | 21,097  | 1,758  | 100%  |
| **Steps 4 & 5:** Full-text articles requested |  4,181  |  348  |  19.8%  |
| **Step 6:** Articles sent to PDQ Board Members for review |  3,301  |  275  |  15.6%  |
| **Step 7:** Citations added to summaries  |  1,367  |  114  |  6.5%  |

\*Includes additional (“fast-tracked”) citations not found in monthly PubMed search results. Fast-tracked citations are identified by PDQ Editorial Board members and Editorial Board Managers and published to the CiteMS before they can be retrieved in monthly PubMed search results. Also includes articles submitted by outside reviewers and older articles that predate the CiteMS.

**Search Strategies and Initial Citation Review**

The six PDQ Editorial Boards currently maintain 182 cancer information summaries written for health professionals, with about two to three new summaries added each year. (*Note*: PDQ also contains cancer information summaries for patients and Spanish-language versions of many of the health professional and patient summaries. For information about these other summary versions, *see* PDQ Patient Summaries and Summaries in Spanish below.)

The following table shows the number of summaries currently maintained by each Editorial Board.

**Table 2. Number of PDQ Cancer Information Summaries for Health Professionals.**

|  |  |
| --- | --- |
| **PDQ Editorial Board** | **Number of Information Summaries** |
| Adult Treatment | 73 |
| Pediatric Treatment | 23 |
| Supportive & Palliative Care | 28 |
| Screening & Prevention |  31  |
| Cancer Genetics |  8  |
| Complementary & Alternative Medicine |  19 |
|  | **Total = 182** |

Each PDQ information summary addresses a specific cancer-related topic (e.g., breast cancer treatment, breast cancer screening, breast cancer prevention, etc.). Every month, a search strategy corresponding to each cancer information summary topic is executed in PubMed. (See Sample Search Strategies for PDQ Literature Surveillance) Search strategies for a few cross-cutting topics or for summaries that are under development are also executed. Currently, the total number of independent searches executed in PubMed each month is 200. (See Current List of Search Strategies for PDQ Cancer Information Summaries)

The searches cover all journals presently indexed in PubMed (>5,500). Citations from specific journals are then excluded from the search results by the medical librarians who conducted the searches and are not published from the staging database to the CiteMS. In general, the excluded journals are those published in a foreign language and/or those that have not been cited previously in a PDQ summary. Analyses have shown that as few as 100 journals produce 90% of the citations included in PDQ, and 20%-30% of the journals with citations that are currently published to the CiteMS have never been cited in a PDQ summary.

As shown in Table 1, in an average month, approximately 2,200 citations are retrieved from PubMed and imported into the staging database. At this point in the process, about 40% of the retrieved citations are rejected. This initial culling of citations serves several purposes, including the following:

* Elimination of irrelevant and low-relevance citations.
	+ All search results are likely to include at least a few irrelevant or low-relevance citations due to incorrect indexing or limited or vague Medical Subject Heading (MeSH®) coverage for selected topics. This is especially true for rare cancer types.
	+ When a search term cannot be mapped to MeSH, PubMed will use the term to search all fields in citation records, including the title and abstract text fields. Invariably, this type of searching will yield some results of little or no relevance.
* Reassignment of retrieved citations to another summary topic.
	+ Occasionally, due to poor indexing, citations relevant to one summary topic are not retrieved in the search results for that topic but, instead, are retrieved in the search results for another topic. Without careful review, valuable citations for some summary topics might be missed.
* Refinement of search strategies.
	+ Search results for individual search strategies are evaluated on an ongoing basis to ensure that the strategies are performing as intended. If necessary, refinements are made to improve the search results.

Other factors that may prompt changes to literature surveillance search strategies include:

* Changes to PubMed.
* Changes to MeSH terminology.
* Changes to PDQ summary content.
* PDQ Editorial Board Manager feedback.
* Trends in PDQ Editorial Board member selection and rejection of citations.

Citations surviving this initial screening are then published to the CiteMS for review by the PDQ Editorial Board Mangers and other NCI staff. Moreover, additional citations are often identified by PDQ Editorial Board members and Board Managers in the month-long interval between regular PubMed searches. These citations, referred to as “fast-tracked” citations, are also published to the CiteMS for review. The “fast-tracked” designation indicates that these citations are published to the CiteMS and reviewed before they can be retrieved in monthly PubMed searches. Other sources of citations added to the CiteMS include articles recommended by outside reviewers of the PDQ summaries (including the general public), as well as older citations that predate the CiteMS. On average, more than 1,700 citations are published to the CiteMS for review each month.

**Review of Citations by PDQ Board Managers and Other NCI Staff**

Once the initial review of citations has been completed and the citations are published to the CiteMS, the Board Manager for each PDQ Editorial Board and other participating NCI staff are notified that new citations, in abstract form, are available for review.

**Table 3.** **Average** **Numbers of Citations (Abstracts) Reviewed in CiteMS by PDQ Editorial Board Managers and Other NCI Staff Each Month**

|  |  |
| --- | --- |
| **PDQ Editorial Board** | **Average # Abstracts Reviewed/Month\*** |
| Adult Treatment | 844  |
| Pediatric Treatment | 257  |
| Supportive & Palliative Care | 304 |
| Screening & Prevention | 342 |
| Cancer Genetics |  229  |
| Complementary & Alternative Medicine | 149  |
|  | **Total = 2,125** |

 \*Data are for the period from January through June 2011. The numbers include citations that are sent to more than one Editorial Board.

Abstracts relevant to each PDQ Editorial Board are reviewed primarily by the respective Board Managers. However, in the case of the Adult Treatment Editorial Board, the number of topics and citations is sufficiently large that two additional NCI staff members assist in the review.

The reviewers examine the abstracts and make recommendations about which citations should be sent (as full-text articles) to Editorial Board members. If necessary, reviewers can ask for copies of full-text articles to help in their decision-making process.

Final decisions about which citations are forwarded to PDQ Editorial Board members are made by the Board Managers, who review full-text articles for each recommended citation. Packets are then prepared that the contain full-text articles, review/decision sheets for each article, and copies of the relevant PDQ summaries and sent to Editorial Board members. As can be seen in Table 1, approximately 16% of the citations reviewed in abstract form are forwarded to Board members.

The criteria used to review abstracts and select articles vary from Board to Board but generally include the following for human studies:

* Whether the study is peer-reviewed.
* The strength of the study design, including the phase of the study (if applicable), the number of participants, and the endpoints measured.
* The study’s relevance to the PDQ cancer information summary topic.
* Whether the publishing journal has been cited previously in a PDQ summary.

Types of articles that are usually excluded from review but may be sent to Editorial Board members for informational purposes include the following:

* Conference abstracts
* Review articles
* Guidelines and recommendations developed by professional societies or other organizations (e.g., U.S. Preventive Services Task Force, National Comprehensive Cancer Network, American Society of Clinical Oncology, and American Cancer Society)
* Commentaries, Perspectives, and Letters to the Editor
* Individual case reports

In general, the Adult Treatment Editorial Board and the Screening and Prevention Editorial Board use the most stringent criteria for citing studies in their PDQ information summaries, primarily citing reports of randomized controlled clinical trials or meta-analyses of randomized controlled clinical trials and infrequently citing studies of weaker design. However, the criteria can vary depending on the rarity of the cancer type and the volume of available literature on a topic. For example, case series would be considered for rare cancers, such as intraocular melanoma and Merkel cell carcinoma. If a study of weaker design is cited, the description of the study results in the PDQ summary is accompanied by cautionary statements about important limitations of the design.

The Pediatric Treatment Editorial Board focuses on studies that involve children, adolescents, and young adults and that deal with treatment issues or late effects of cancer treatment in these populations. Since pediatric cancers are rare, the Board may consider well-conducted case series.

The Cancer Genetics Editorial Board reviews studies that deal with germ-line mutations, family studies, and studies of individuals at high risk for the cancers under review. Case series for rare syndromes may be considered.

The Supportive and Palliative Care Editorial Board will review non-randomized trials, cohort studies, and prospective case series, although it will not consider studies that are restricted to small populations or where the sample size is small.

Due to a paucity of published high-quality evidence, the Complementary and Alternative Medicine Editorial Board will review most types of human studies for inclusion, with the exception of single-case reports. In addition, this Editorial Board will consider laboratory and animal studies that focus on potential mechanisms of action for interventions under review and address the biological plausibility of reported health effects.

**Review of Citations by PDQ Editorial Board Members**

Each PDQ cancer information summary is assigned to at least one PDQ Editorial Board member, who serves as either the lead or co-lead editor/reviewer for the summary. If a new, potentially important citation relevant to a summary is identified in a monthly PubMed search, a packet containing the full-text article for that citation, a decision sheet, and a copy of the summary are sent to the appropriate Editorial Board member(s).

The citation decision options available to Board members include the following:

* No changes to the PDQ summary are warranted
* The new citation should replace an existing citation(s)
* The new citation deserves inclusion as an additional citation
* The text of the summary should be revised and the new citation added
* The full-text article merits discussion at a future Editorial Board meeting
* The full-text article merits discussion at a future working group meeting.

Some of the factors taken into account by Editorial Board members when evaluating citations are:

* The relevance of the study to the PDQ summary topic
* The strength of the study design
* The appropriateness of the study design to the research question being asked
* The rigor and the quality of the study’s execution, analysis, and reporting
* Whether the study provides new information or novel findings
* The contribution of the findings to the body of scientific literature on the topic
* The importance of the findings to clinical practice (do they change practice?)

Completed decision sheets and proposed changes to the text of PDQ summaries are returned to NCI and used to prepare agendas for future Editorial Board meetings. Most new citations that result in changes to the text of a PDQ summary are discussed at Board meetings. Citations that simply replace older citations may be added to a summary without Editorial Board discussion. Approximately 7.0% of the citations reviewed by Board Managers, other NCI staff, and Editorial Board members are ultimately cited in a PDQ summary (see Table 1).

**Summary Development and Maintenance**

**Overview**

The PDQ Editorial Boards use a formal systematic literature review process (described above) that provides the evidence base for developing new information summaries and revising existing ones. In addition, each Editorial Board has an external Advisory Board that reviews existing PDQ summaries on a regular basis and provides feedback to its associated Editorial Board. More information on these Board operations is provided immediately below.

**Summary Maintenance**

Before each PDQ Editorial Board meeting, Board members receive an agenda packet that contains the materials that will be discussed at the meeting. These materials include proposed changes to the text of existing PDQ summaries, research articles supporting the proposed changes, drafts of new information summaries, and comprehensively reviewed/revised summaries. Most of the research articles to be reviewed and discussed are identified in the monthly literature surveillance process described above.

**New Summaries**

Overall, the PDQ Editorial Boards add about two to three new summaries each year. The summary topics are determined by the authoring Board and are either topics for which there is sufficient new evidence and interest to warrant a summary or, in some cases, topics that result from the reorganization of information on a group of cancers (e.g., childhood brain tumors). New summaries are usually developed by a subgroup of Board members and then brought to the full Editorial Board for approval.

**Comprehensive Revisions**

In addition to maintaining the currency of the information summaries through the monthly literature surveillance process, most summaries also undergo a comprehensive revision approximately every 2 years. In a comprehensive revision, a subgroup of Editorial Board members reviews the summary in its entirety, rewrites and reorganizes the summary content as necessary, and replaces older citations with newer ones as needed. The comprehensively revised summary is then brought to the full Editorial Board for review and approval.

**PDQ Advisory Boards**

As noted previously, each of the six PDQ Editorial Boards has an external Advisory Board comprised of experts in the areas covered by its corresponding Editorial Board. Advisory Board members are proposed by members of the corresponding Editorial Board and are recognized experts in their area of specialization. Advisory Boards do not hold face-to-face meetings, and information summaries are sent to the members of these Boards for review and comment approximately every 2 years. All summary changes proposed by Advisory Board members are reviewed and discussed by the corresponding Editorial Board, which makes final decisions about changes to PDQ summaries.

**PDQ Patient Summaries and Summaries in Spanish**

PDQ also contains patient-oriented versions of most of its health professional information summaries. These patient summaries are written in less-technical language, and images and glossary links are used to facilitate understanding of complex medical concepts and procedures. Moreover, many of the health professional and patient summaries are available in Spanish; the Spanish summaries can be accessed on NCI’s Spanish-language website, Cancer.gov en español (*see* Banco de datos de información de cáncer (PDQ®).

The patient and Spanish versions of PDQ summaries are derived from the health professional summaries maintained by the PDQ Editorial Boards. When changes are made to a health professional summary in English, corresponding changes are made to the health professional summary in Spanish, if one exists. The patient version of the summary in English is also examined to see if any changes are necessary. If changes are made to a patient summary in English, corresponding changes are made to the patient version in Spanish, if one exists.

**Evidence Assessments**

The primary goal of the PDQ cancer information summaries is to describe the current state of the evidence regarding the development and use of cancer-related interventions. In the summaries, interventions are classified as either standard (i.e., supported by evidence in the medical literature and in common use) or supported only by very weak evidence and often still under clinical evaluation.

The guiding principle for the PDQ Editorial Boards in systematically assessing the published biomedical literature on an ongoing basis and in developing and maintaining the PDQ cancer information summaries is that evidence, linked to an explicit consideration of the quality of the evidence, takes precedence over consensus. To aid in these evaluations, the Boards use formal criteria to classify, or rank, the strength of the evidence from individual research studies or for specific interventions, depending on the Board. The criteria used by the PDQ Editorial Boards to classify evidence are based on methods originally developed by the Canadian Task Force on the Periodic Health Examination, which is now called the [Canadian Task Force on Preventive Health Care](http://www.canadiantaskforce.ca/). Other organizations that conduct healthcare-related evidence-based assessments, such as the [U.S. Preventive Services Task Force](http://www.uspreventiveservicestaskforce.org/index.html), have also adapted the Canadian Task Force methodology.

The first PDQ Editorial Board to develop and apply formal criteria for ranking evidence was the Adult Treatment Editorial Board. Thereafter, the other PDQ Editorial Boards either used the same “Levels of Evidence” hierarchy (i.e., the Pediatric Treatment Editorial Board) or modified the hierarchy to meet their individual needs (i.e., the remaining Editorial Boards).

The following text provides a brief summary of the criteria used by each Editorial Board, followed by a link to a more detailed description:

* The PDQ Adult Treatment And Pediatric Treatment Editorial Boards:

Individual studies are ranked on the basis of the statistical strength of the study design and the strength of the clinical endpoints measured. Numeric ordinal scores, ranging from 1i to 3iii, are assigned to studies according to the strength of their design, with the randomized, controlled, double-blind clinical trial representing the strongest design (1i) and the nonconsecutive case series representing the weakest design (3iii). Next, an alphabetic ordinal score, ranging from A to Div, is assigned to studies according to the strength of the clinical endpoints measured, with total mortality/overall survival being the strongest endpoint (A) and tumor response rate being the weakest (Div). Then, the two scores are combined to give a final Level of Evidence score, ranging from 1iA to 3iiiDiv.

A second system that permits classification of the strength of evidence for specific interventions, taking into account the magnitude of the effects for both benefits and harms, is now under development.

For more detailed information about the current system, see [Levels of Evidence for Adult and Pediatric Cancer Treatment Studies (PDQ®)](http://www.cancer.gov/cancertopics/pdq/levels-evidence-adult-treatment/HealthProfessional).

* The PDQ Supportive and Palliative Care Editorial Board:

Individual studies are ranked on an ordinal scale, using Roman numerals I to IV, based on the appropriateness of the study to the question being addressed and how well the study was designed, implemented, analyzed, and interpreted. Evidence from randomized controlled trials and meta-analyses randomized controlled trials provide the highest-quality evidence (I), and opinions of respected authorities based on clinical experience, consensus statements from expert committees, or authoritative reviews provide the lowest-quality evidence (IV). Assessments of the strength of clinical endpoints measured are not included in this system.

For more detailed information, see [Levels of Evidence for Supportive and Palliative Care Studies (PDQ®)](http://www.cancer.gov/cancertopics/pdq/levels-evidence-supportive-care/HealthProfessional).

* The PDQ Cancer Genetics Editorial Board:

Evidence supporting the use of screening, prevention, and treatment interventions in populations at risk due to inherited mutations or family history of cancer is classified. Evidence assessments for screening interventions are based on strength of study design only; evidence assessments for prevention and treatment interventions are based on study design strength and the clinical importance of the endpoints measured.

Evidence from screening studies is classified using a numeric score that ranges from 1 to 5, with the strongest evidence from well-designed, well-conducted randomized controlled trials (1) and the weakest evidence from descriptive studies, reports of expert committees, or opinions of respected authorities based on clinical experience (5).

Evidence from prevention studies is classified using an alphanumeric scale that ranges from 1ai (evidence from at least one well-designed, well-conducted randomized controlled trial with cancer mortality as the endpoint) to 5 (evidence from descriptive studies, reports of expert committees, and opinions of respected authorities based on clinical experience or stronger study designs using unvalidated surrogate endpoints).

Evidence from treatment studies is ranked using an alphanumeric scale that ranges from 1 to 5, with the strongest evidence from randomized controlled trials (1) and the weakest evidence from descriptive studies, reports of expert committees, or opinions of respected authorities based on clinical experience (5).

For more detailed information, see [Levels of Evidence for Cancer Genetics Studies (PDQ®)](http://www.cancer.gov/cancertopics/pdq/levels-evidence-genetics/healthprofessional).

* PDQ Cancer Complementary and Alternative Medicine (CAM) Editorial Board:

With one exception, this Editorial Board uses an evidence ranking hierarchy that is virtually identical to that of the Adult Treatment and Pediatric Treatment Editorial Boards. The one exception is the inclusion of an additional category of study design, i.e., the “best case series.” In terms of statistical strength, the best case series provides the weakest evidence classified by the PDQ Cancer CAM Editorial Board. Such studies are assigned a numeric score of 4.

For more detailed information, see [Levels of Evidence for Human Studies of Cancer Complementary and Alternative Medicine (PDQ®)](http://www.cancer.gov/cancertopics/pdq/levels-evidence-cam/HealthProfessional).

* PDQ Screening and Prevention Editorial Board:

Evidence assessments by this Editorial Board summarize the magnitude of the effects (including relative and absolute risks) for both the benefits and harms of cancer screening and prevention interventions.

The Board uses five domains to describe study evidence, including:

1. Strength of study design, ranging from randomized, controlled trials to expert opinion/expert consensus/authoritative reviews,
2. Internal validity, or the quality of execution within the study design,
3. Consistency and volume of the existing evidence,
4. Magnitudes of effects on health outcomes, and
5. External validity (the extent to which the intervention can be applied to usual practice/the general population with the same effects as obtained in the study population).

Then, the Board provides summary assessments for interventions that include:

* The level of certainty (solid, fair, inadequate) regarding the direction and magnitude of the health effects (both benefits and harms)
* A statement of benefits
* A statement of harms

For more detailed information, [Levels of Evidence for Cancer Screening and Prevention Studies (PDQ®)](http://www.cancer.gov/cancertopics/pdq/screening/levels-of-evidence/healthprofessional).

**Supplemental Document 1**

**Sample Search Strategies for PDQ Literature Surveillance**

1. **Prostate Cancer Treatment:**

((Prostatic Neoplasms/therapy[mesh] AND (“cohort studies”[MESH] OR “Case-Control Studies”[MESH] OR clinical trial[pt] OR meta-analysis[pt] OR multicenter study[pt] OR systematic[sb] OR mortality[MESH] OR Outcome Assessment[mesh] OR prognosis[mesh] OR survival analysis[mesh])) OR (Prostatic Neoplasms[majr] AND (Outcome Assessment[mesh] OR Disease-Free Survival[mesh])) OR (Prostatic Neoplasms[majr] AND (“cohort studies”[MESH] OR “Case-Control Studies”[MESH] OR clinical trial[pt] OR meta-analysis[pt] OR multicenter study[pt] OR systematic[sb] OR Neoplasm Recurrence, Local[mesh] OR Recurrence[mesh] OR Neoplasm, Residual[mesh]OR Neoplasm Staging[mesh] OR Neoplasm Metastasis[mesh] OR mortality[sh]) AND (mortality[MESH] OR Outcome Assessment[mesh] OR prognosis[mesh] OR survival analysis[mesh])) OR (Prostatic Neoplasms[majr] AND prognosis[mesh] AND survival analysis[mesh]) OR Prostatic Neoplasms/genetics[majr] OR Prostatic Neoplasms/drug therapy[majr] OR (Prostatic Neoplasms/therapy[majr] AND (Clinical Trials[mesh] OR Meta-analysis[mesh] OR Quality of Life[mesh] OR Combined Modality Therapy[mesh] OR Neoadjuvant Therapy[mesh] OR Chemotherapy, Adjuvant[mesh] OR Ethnology[sh] OR systematic[sb])))

**AND**

Humans[mesh]

**AND**

English[la]

**NOT**

(case reports[pt] OR cell lines[tw] OR cell line[tw] OR cells, cultured[mesh] OR Eukaryotic cells[mesh] OR news[pt] OR newspaper article[pt] OR interview[pt] OR nursing[sh] OR Patient Education Handout[pt] OR jsubsetk OR jsubsetq OR jsubsets OR forms and records control[mesh] OR medical records[mesh] OR prokaryotic cells[mesh] OR Animals[mesh:noexp] OR Anesthesia/methods[majr] OR instrumentation[sh] OR veterinary medicine[mesh] OR cost-benefit analysis[mesh] OR cost[ti] OR veterinary[sh])

1. **Transitional Care Planning:**

 ((case management[mesh] OR continuity of patient care[mesh] OR home care services[mesh] OR Patient discharge[mesh] OR Proxy[mesh] OR Advance Directives[mesh]) **AND** neoplasms[majr]) OR (Neoplasms/economics[mesh] AND (psychcology[sh] OR survivors[mesh])) OR (((Economic[tiab] AND worry[tiab]) OR “economic stress” OR “financial stress” OR stress, psychological/economics[mesh] OR ((employment[mesh] OR unemployment[mesh] OR Income[mesh]) AND survivors[mesh])) AND neoplasms[mesh])

**AND**

Humans[mesh]

**AND**

english[la]

**NOT**

 (cells, cultured[mesh] OR Eukaryotic cells[mesh] OR forms and records control[mesh] OR medical records[mesh] OR prokaryotic cells[mesh] OR Animals[mesh:noexp] OR veterinary medicine[mesh] OR cost-benefit analysis[mesh] OR veterinary[sh] OR cell lines[tw] OR cell line[tw] OR case reports[pt] OR interview[pt] OR letter[pt] OR news[pt] OR Newspaper Article[pt] OR Patient Education Handout[pt] OR jsubsetk OR jsubsetq)

**Supplemental Document 2**

**Current List of Search Strategies for PDQ Cancer Information Summaries**

(***Note***: Items marked with an \* do not have a corresponding PDQ cancer information summary)

**Adult Treatment Summary Topics (78):**

Adrenocortical Carcinoma

Adult Acute Lymphoblastic Leukemia

Adult Acute Myeloid Leukemia

Adult Brain Tumors

Adult Hodgkin Lymphoma

Adult Leukemia\*

Adult Lymphoma\*

Adult Non-Hodgkin Lymphoma

Adult Primary Liver Cancer

Adult Soft Tissue Sarcoma

AIDS-Related Lymphoma

Anal Cancer

Bladder Cancer

Breast Cancer

Breast Cancer and Pregnancy

Carcinoma of Unknown Primary

Cervical Cancer

Chronic Lymphocytic Leukemia

Chronic Myelogenous Leukemia

Chronic Myeloproliferative Disorders

Colon Cancer

Colorectal Cancer\*

Endometrial Cancer

Esophageal Cancer

Extragonadal Germ Cell Tumors

Extrahepatic Bile Duct Cancer

Gallbladder Cancer

Gastric Cancer

Gastrointestinal Carcinoid Tumors

Gastrointestinal Stromal Tumors

Gestational Trophoblastic Tumors and Neoplasia

Hairy Cell Leukemia

Hypopharyngeal Cancer

Intraocular (Eye) Melanoma

Islet Cell Tumors (Endocrine Pancreas)

Kaposi Sarcoma

Laryngeal Cancer

Lip and Oral Cavity Cancer

Lung Cancer\*

Male Breast Cancer

Malignant Mesothelioma

Melanoma

Merkel Cell Carcinoma

Metastatic Squamous Neck Cancer with Occult Primary

Mycosis Fungoides and the Sézary Syndrome

Myelodysplastic Syndromes

Myelodysplastic/ Myeloproliferative Neoplasms

Nasopharyngeal Cancer

Non-Small Cell Lung Cancer

Oropharyngeal Cancer

Ovarian Epithelial Cancer

Ovarian Germ Cell Tumors

Ovarian Low Malignant Potential Tumors

Pancreatic Cancer

Paranasal Sinus and Nasal Cavity Cancer

Parathyroid Cancer

Penile Cancer

Pharyngeal Cancer\*

Pheochromocytoma and Paraganglioma

Pituitary Tumors

Plasma Cell Neoplasms (Including Multiple Myeloma)

Primary CNS Lymphoma

Prostate Cancer

Rectal Cancer

Renal Cell Cancer

Salivary Gland Cancer

Skin Cancer

Small Cell Lung Cancer

Small Intestine Cancer

Testicular Cancer

Thymoma and Thymic Carcinoma

Thyroid Cancer

Transitional Cell Cancer of the Renal Pelvis and Ureter

Urethral Cancer

Uterine Cancer\*

Uterine Sarcoma

Vaginal Cancer

Vulvar Cancer

**Cancer Genetics (10)**:

Cancer Genetics Overview

Cancer Genetics Risk Assessment and Counseling

Genetics of Breast and Ovarian Cancer

Genetics of Colorectal Cancer

Genetics of Kidney Cancer\*

Genetics of Medullary Thyroid Cancer

Genetics of Prostate Cancer

Genetics of Skin Cancer

Psychosocial Aspects of Cancer Genetics\*

**Complementary and Alternative Medicine (22):**

714-X

Acupuncture

Antineoplastons

Aromatherapy and Essential Oils

CAM Overview\*

Cancell/Cantron/Protocel

Cannabis and Cannabinoids

Cartilage (Bovine and Shark)

Coenzyme Q10

Essiac/Flor●Essence

Gerson Therapy

Gonzalez Regimen

Hydrazine Sulfate

Laetrile/Amygdalin

Milk Thistle

Mistletoe Extracts

Newcastle Disease Virus

PC-SPES

Prostate Cancer Supplements\*

Saw Palmetto\*

Selected Vegetables/Sun’s Soup

**Pediatric Treatment (27):**

Childhood Acute Lymphoblastic Leukemia

Childhood Acute Myeloid Leukemia/Other Myeloid Malignancies

Childhood Astrocytomas

Childhood Brain and Spinal Cord Tumors Overview

Childhood Brain Stem Glioma

Childhood Central Nervous System Atypical Teratoid/Rhabdoid Tumor

Childhood Central Nervous System Embryonal Tumors

Childhood Craniopharyngioma

Childhood Ependymoma

Childhood Extracranial Germ Cell Tumors

Childhood Hodgkin Lymphoma

 Childhood Intracranial Germ Cell Tumors\*

Childhood Leukemia\*

Childhood Liver Cancer

Childhood Lymphoma\*

Childhood Non-Hodgkin Lymphoma

Childhood Rhabdomyosarcoma

Childhood Soft Tissue Sarcoma

Ewing Sarcoma Family of Tumors

Langerhans Cell Histiocytosis

Late Effects of treatment for Childhood Cancer

Neuroblastoma

Osteosarcoma/Malignant Fibrous Histiocytoma of Bone

Pediatric Bone Marrow Transplant\*

Retinoblastoma

Unusual Cancers of Childhood

Wilms Tumor and Other Childhood Kidney Tumors

**Screening and Prevention (33):**

Bladder Cancer Prevention\*

Bladder and Other Urothelial Cancers Screening

Breast Cancer Prevention

Breast Cancer Screening

Cancer Prevention Overview

Cancer Screening Overview

Cervical Cancer Prevention

Cervical Cancer Screening

Colorectal Cancer Prevention

Colorectal Cancer Screening

Endometrial Cancer Prevention

Endometrial Cancer Screening

Esophageal Cancer Prevention

Esophageal Cancer Screening

Liver (Hepatocellular) Cancer Prevention

Liver (Hepatocellular) Cancer Screening

Lung Cancer Prevention

Lung Cancer Screening

Neuroblastoma Screening

Neuroblastoma Prevention\*

Oral Cancer Prevention

Oral Cancer Screening

Ovarian Cancer Prevention

Ovarian Cancer Screening

Prevention and Cessation of Cigarette Smoking: Control of Tobacco Use

Prostate Cancer Prevention

Prostate Cancer Screening

Skin Cancer Prevention

Skin Cancer Screening

Stomach (Gastric) Cancer Prevention

Stomach (Gastric) Cancer Screening

Testicular Cancer Screening

Testicular Cancer Prevention\*

**Supportive and Palliative Care (30):**

Adjustment to Cancer: Anxiety and Distress

Anemia\*

Anxiety Disorder

Cardiopulmonary Syndromes

Cognitive Disorders and Delirium

Communication in Cancer Care

Depression

Exercise\*

Family Caregivers in Cancer: Roles and Challenges

Fatigue

Fever, Sweats, and Hot Flashes

Gastrointestinal Complications

General Supportive Care\*

Grief, Bereavement, and Coping With Loss

Hypercalcemia

Last Days of Life

Lymphedema

Nausea and Vomiting

Nutrition in Cancer Care

Oral Complications of Chemotherapy and Head/Neck Radiation

Pain

Pediatric Supportive Care

Post-traumatic Stress Disorder

Pruritus

Sexuality and Reproductive Issues

Sleep Disorders

Smoking Cessation and Continued Risk in Cancer Patients

Spirituality in Cancer Care

Substance Abuse Issues In Cancer

Transitional Care Planning