



OVERVIEW

Advances in medical technology have vastly improved the length and quality of human life. People are living longer, more productive lives than ever before, and every day offers promise of new hope for those suffering debilitating illness or injury.

Participants conduct research on a contemporary medical technology problem of their choosing, document their research, and create a display. The steps used in the solution of the problem may be student-performed research or a re-creation or simulation of research performed by the scientific community. if appropriate, a model or prototype of the solution may be included in the display.

PURPOSE

Choose a challenging contemporary problem related to medical technology and demonstrate understanding through research, development of a solution, and effective multimedia presentation.

ELIGIBILITY

- A. Entries are limited to one (1) team per chapter.
- B. There is a limit of two (2) student representatives per team for the finalist presentation/interview.

TIME LIMITS

- A. Entries must be started and completed during the current school year.
- B. Finalists are given up to ten (10) minutes to make their presentations, which are followed with a few minutes for questions from evaluators.

ATTIRE

Professional dress as described in Competitive Events Attire is the minimum requirement for finalists.

You may choose any medical technology problem, and if you choose one that is exciting to you, you're sure to be a success! Perhaps you have an idea for helping the disabled, or are interested in how telemedicine is affecting the lives of people in rural areas. Want to explore disease prevention from the standpoint of molecular engineering? These topics and many more would be appropriate for this event.

PROCEDURE

- A. Team members choose a contemporary medical technology issue they'd like to research. Resources may include but are not limited to books, interviews, web sites, magazines, professional journals, etc. Team members then prepare their documentation, display, and PowerPoint presentations according to the regulations below.
- B. Participants check-in their entries at the time and place stated in the conference program. No more than two (2) team members set up their display.
- C. Evaluators review entries. Neither students nor advisors are present at this time. A finalist list in random order is posted.
- D. Two (2) representatives from each finalist team report to the event area at the time and place stated in the conference program with their PowerPoint presentation on a 3.5" floppy disk, on a CD, or on a zip disk.
- E. Finalist team representatives make a brief presentation and answer questions from evaluators. Up to ten (10) minutes are provided for the presentation, with a few minutes more if there are questions. No more than two (2) team members pick up their entry from the display area at the time and place stated in the conference program.

Read the General Rules and Regulations in the front of this book for information that applies to all of TSA's competitive events.

REGULATIONS

- A. All work must be completed during the current school year.
- B. Students must understand the fundamental concepts and principles of the contemporary medical technology issue the team has selected. Research should focus on significant impacts (opportunities and risks) on the environment, economy, and society, as well as any important ethical considerations.
- C. Entries must include documentation within a standard three-ring binder, consisting of the following:
 1. Cover page with title of the problem, one (1) page
 2. Definition and explanation of the problem, one (1) page
 3. An explanation of the solution, including other possible solutions and why they were rejected, maximum three (3) pages
 4. A scenario of possible real-life applications, one (1) page
 5. Supplementary information such as logs, graphs, sketches, drawings, illustrations, photographs, etc., maximum four (4) pages
 6. A print-out of the accompanying PowerPoint presentation [printed with three (3) slides per page recommended], pages as needed
 7. A list of team members and their responsibilities, one (1) page
 8. A list of references and resources, pages as needed
- D. Display guidelines are as follows:
 1. The size of the display may not exceed 18" deep x 3' wide x 3' high.
 2. Models or prototypes, if included, must be contained within the allotted display space.

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3. A/C electricity may not be used. Dry cell or photovoltaic cells may be used for power, if desired. Any power source used must fit within the maximum display area.
 4. If operating instructions are necessary, they must be clearly displayed.
 5. **No harmful or illegal substances, viruses, live plants, nor animals may be used as a part of the display. No potentially dangerous processes may be demonstrated or included as part of the display.**
- E. Each team should be prepared to send two (2) representatives to a finalist interview in which the representatives use PowerPoint to make a brief presentation. The presentation explains their selection of the problem and its solution and is not to exceed 10 (ten) minutes. Evaluators then ask questions.
- F. A PC with Microsoft PowerPoint 2000 software, a 3.5" floppy drive, a CD-ROM drive, and a zip drive is provided.

Don't forget! Your documentation must not include any identifying information.

EVALUATION

Evaluation is based on the documentation, the display, and the presentation/interview (finalists only). Please refer to the official rating form for more information.

Just to be on the safe side, bring a backup copy or two of the PowerPoint presentation, perhaps even on different kinds of disks.

**MEDICAL TECHNOLOGY
EVENT COORDINATOR'S INSTRUCTIONS**

PERSONNEL

- A. Event coordinator
- B. Assistants for check-in, two (2)
- C. Evaluators for displays, three (3)
- D. Evaluators for finalist presentations, three (3)

MATERIALS

- A. Coordinator's box, containing:
 - 1. Event guidelines, one (1) each for coordinator and evaluators
 - 2. Official rating forms
 - 3. List of entries, with finalist report
 - 4. List of evaluators/assistants
 - 5. Stick-on labels for numbering entries
 - 6. Marking pens for evaluators
 - 7. Finalist list for posting
 - 8. Results envelope
- B. Tape measure for evaluators
- C. Three (3) calculators for evaluators
- D. Stopwatch
- E. Display tables for entries (minimum width 18")
- F. Table and chairs for evaluators and two (2) finalist team representatives
- G. A PC with Microsoft PowerPoint 2000 software, a 3.5" floppy drive, a zip drive, and a CD Rom drive. (A laptop computer is acceptable.)

PROCEDURE

- A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's box. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.
- B. Inspect the area in which the displays are being placed for appropriate set-up, including appropriate number and size of tables.
- C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check in..
- D. Place an entry number in the lower right-hand corner of the display and on each notebook. Position entries for evaluation and viewing. Secure the entries in the designated area.

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- E. Meet with your evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.
- F. Evaluators independently assess the entries.
- G. For participants who violate the rules, the decision either to deduct twenty (20) points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and CRC manager. Secure the initials of the coordinator and manager on the rating form.
- H. Evaluators average their three (3) scores to determine the ten (10) finalists. Prepare a list of the ten (10) finalists in random order and submit it to the CRC chairperson for posting. Inspect the area in which the presentations are to take place. There must be seating for at least five (5) people at a table set up with a computer and monitor.
- K. Meet with your *finalist* evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.
- L. Conduct finalist presentations/interviews using the same official rating forms used by the first set of evaluators. Evaluators must be sure to ask questions.
- M. Evaluators average their three (3) scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.
- N. Complete and submit the finalists report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.
- O. If necessary, manage security and the removal of materials from the event area.

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| Be sure to seal the results in the envelope provided and return it to the CRC room. |
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MEDICAL TECHNOLOGY

2002 OFFICIAL RATING FORM

HIGH SCHOOL

MEDICAL TECHNOLOGY

| TEAM/CHAPTER ID # | | | | | | | | | | | | | | | | | | | | |
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| EVALUATIVE CRITERIA | | | | | | | | | | | | | | | | | | | | |
| Documentation (40 pts.) Problem identification and clarification.....8 pts. Research (thorough, well-written)8 pts. Solution/conclusion (original, logical, feasible)8 pts. Supporting graphics (logs, graphs, etc.)8 pts. Overall quality and effectiveness8 pts. | | | | | | | | | | | | | | | | | | | | |
| Display (40 pts.) Effective communication of problem10 pts. Effective communication of solution (Models, if present, are evaluated here.)10 pts. Creativity.....10 pts. Artisanship and overall quality of display 10 pts. | | | | | | | | | | | | | | | | | | | | |
| Rules violation (must be initialed by coordinator and manager) minus 20 pts. | | | | | | | | | | | | | | | | | | | | |
| SUBTOTAL.....80 pts. | | | | | | | | | | | | | | | | | | | | |
| Interview--finalists only (20 pts.) Presentation is well-organized, clear, and articulate with participation from both representatives 10 pts. PowerPoint is used effectively5 pts. Responses to questions are thoughtful and knowledgeable5 pts. | | | | | | | | | | | | | | | | | | | | |
| TOTAL.....100 pts. | | | | | | | | | | | | | | | | | | | | |

Comments:

I certify to these results to be true and accurate to the best of my knowledge.

Documentation and display evaluator
 Printed name: _____ Signature: _____

Presentation /interview evaluator
 Printed name: _____ Signature: _____