

# Proton Beam Therapy

---

## Draft Key Questions: Public Comments & Response

November 8, 2013

**Health Technology Assessment Program (HTA)**  
Washington State Health Care Authority  
PO Box 42712  
Olympia, WA 98504-2712  
(360) 725-5126  
[hta.hca.wa.gov](http://hta.hca.wa.gov)  
[shtap@hca.wa.gov](mailto:shtap@hca.wa.gov)



## **Proton Beam Therapy**

---

### **Draft Key Questions Public Comment & Response**

November 8, 2013



## **Response to Public Comments**

*The Institute for Clinical and Economic Review (ICER) is an independent vendor contracted to produce evidence assessment reports for the Washington HTA program. For transparency, all comments received during the public comment period are included in this response document. Comments related to program decisions, process, or other matters not pertaining specifically to the draft key questions, project scope, or evidence assessment are acknowledged through inclusion only.*

This document responds to comments from the following parties. Note that comments received from other parties that did not directly discuss evidence or the key questions are acknowledged at the end of this document.

### **Draft Key Questions**

- Eugen Hug, MD, Chief Medical Officer, ProCure Treatment Centers, Inc.
- Christopher Sinesi, MD, Medical Director, Hampton University Proton Therapy Institute
- George E. Laramore, PhD, MD, FASTRO, FACR, Medical Director, SCCA Proton Center and Peter Wootton Professor of Radiation Oncology, University of Washington School of Medicine; and Nina Mayr, MD, FASTRO, FAAAS, Chair, Dept. of Radiation Oncology, University of Washington School of Medicine
- J. Russell Geyer, MD, Hematology/Oncology Program, Seattle Children's Hospital, and Professor of Pediatrics, University of Washington
- Joint letter from The Proton Therapy Consortium, The National Association for Proton Therapy, The Particle Therapy Co-Operative Group-North America, The Alliance of Dedicated Cancer Centers, The Pediatric Proton Foundation, and The Brotherhood of the Balloon
- Jerry D. Slater, MD, Professor and Chair, Dept. of Radiation Medicine, Loma Linda University Medical Center; and David A. Bush, MD, Professor and Vice Chair, Dept. of Radiation Medicine, Loma Linda University Medical Center

- Ramesh Rengan, MD, PhD, Associate Medical Director, SCCA Proton Center, and Associate Professor, Dept. of Radiation Oncology, University of Washington; Shilpen Patel, MD, Associate Professor and Chief, Thoracic Service, Dept. of Radiation Oncology, University of Washington; and Jing Zeng, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington
- Gail M. Rodriguez, Executive Director, Medical Imaging & Technology Alliance (MITA)
- Ralph Ermoian, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington School of Medicine
- Smith Apisarnthanarax, MD, Associate Professor; Edward Kim, MD, Assistant Professor, Wui-Jin Koh, MD, Professor; Shilpen Patel, MD, Associate Professor and Chief, Thoracic Service; and Jing Zeng, MD, Assistant Professor; From the Dept. of Radiation Oncology, University of Washington School of Medicine
- L. Christine Fang, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington School of Medicine and SCCA Proton Center
- Nancy Mendenhall, MD, Professor and Associate Chair, Dept. of Radiation Oncology, College of Medicine – Jacksonville, University of Florida and Medical Director, University of Florida Proton Therapy Institute
- Ronny Leone Rotondo, MD, CM, FRCPC, Assistant Professor, University of Florida and University of Florida Proton Therapy Institute
- Steven E. Schild, MD, Professor and Chair, Dept. of Radiation Oncology, Mayo Clinic, Phoenix, AZ; Robert L. Foote, Professor and Chair, Dept. of Radiation Oncology, Mayo Clinic, Rochester, MN
- Diane Priebe, RN, BSN, Manager, Medical Policy, Regence
- Ed Kim, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington
- Susan Ralston, Executive Director, Pediatric Proton Foundation
- Gene Boylan, Milton, MA
- Jeffrey S. Philbin, PhD
- Rich Braun
- Jerald Parker, PhD
- Edward Solomon
- Robert E. Staples
- Ray Boland
- Robert Tellez
- Francis K. Lee

- John D. Gallup III
- David Drexler
- David Breen
- Peter Grimm, DO, Prostate Cancer Center of Seattle
- Carl J. Rossi, MD, Medical Director, Scripps Proton Therapy Center
- Peter Davidson

	Comment	Response
<i>Eugen Hug, MD, Chief Medical Officer, ProCure Treatment Centers, Inc.</i>		
1	KQ #1: We propose to change item A, “brain and spinal cord tumors”, to the following: “brain and spinal cord tumors, primary and secondary skull base tumors and paraspinal tumors.”	<i>We have amended the list of cancers to be inclusive of all the cancers listed here (although the headings read somewhat differently).</i>
2	KQ#1: We therefore request change from “ocular melanomas” to “ocular tumors”.	<i>This change has been made.</i>
3	KQ#1: We recommend to either create a separate item, i.e., Item I: Sarcomas or to include this in the evaluation of skull base and paraspinal tumors as noted above.	<i>Please see above.</i>
4	KQ#1: We believe that it would be an important inclusion to list as “Item J: Recurrence following the prior radiotherapy.”	<i>Recurrent cancer is now explicitly described in the project scope as well as in Key Question 2.</i>
5	KQ#1: We also recommend inclusion of gynecologic malignancies as item K.	<i>This change has been made.</i>
6	KQ#2: We propose the following change: “What is the impact of curative, salvage, or palliative treatment with proton beam therapy .....”	<i>Given the feedback from many that proton beam therapy is used very rarely for palliative purposes, this has been removed from the project scope.</i>
7	In summary, we herewith request that studies that focus on treatment planning and/or dosimetry shall be included.	<i>We have clarified the use of dosimetry and planning studies in our review, which will be to support setting the context around radiation risks. However, given uncertainties that still exist with proton beam physics (e.g., penumbra, end-of-range) as well as biology (e.g., tumor kill, normal tissue injury) relative to photon radiation, particularly in adults, we respectfully submit that net clinical benefit for proton beam therapy can only be adequately evaluated based on measures of clinical impact (e.g., tumor response, toxicity).</i>
8	In the analytical framework, we herewith request that the benefits of proton beam therapy as measured by reduction of acute- and long-term toxicities in comparison with alternative radiotherapy modalities be included.	<i>The analytic framework is intended to reflect the key measures of benefit and harm in an evaluation of proton beam or any other radiation therapy, not to document the potential benefits of proton beam over alternatives. If proton beam is found to result in reduced radiation of normal tissue versus alternative radiation approaches, this will of course be reflected in the results of the review.</i>
9	Multiple suggested changes to the Table.	<i>As noted in the draft key questions, the Table was intended to be illustrative, not exhaustive, but this</i>

	Comment	Response
10	Outcomes: we recommend to include the incidents (sic) of second malignant neoplasm.	<i>appears to have caused confusion. It has been removed from the document.</i>  <i>This has been added to the project scope.</i>
11	We recommend to include only prospectively obtained quality of life data.	<i>All evidence on the outcomes of interest will be gathered, whether from prospective or retrospective studies. We are aware of the bias concerns with retrospective studies of any outcome and will take those into consideration in our review.</i>
12	It is of paramount importance that any cost-effectiveness analysis will take into account not only the immediate, one-time costs of radiotherapy, but also the “down-stream” costs.	<i>The description of economic literature has been revised to include evaluation of treatment-related, other short-term, and long-term costs.</i>
13	Available literature listed.	<i>Thank you for these references.</i>
<b>Christopher Sinesi, MD, Medical Director, Hampton University Proton Therapy Institute</b>		
1	Please allow for full consideration of the planning and dosimetric studies that have been performed and published comparing proton beam radiation to standard radiation techniques.	<i>Please see our response to comment 7 on page 4.</i>
<b>George E. Laramore, PhD, MD, FASTRO, FACR, Medical Director, SCCA Proton Center and Peter Wootton Professor of Radiation Oncology, University of Washington School of Medicine; and Nina Mayr, MD, FASTRO, FAAAS, Chair, Dept. of Radiation Oncology, University of Washington School of Medicine</b>		
1	Regarding Scope: Intervention (page 2): It is not appropriate to exclude from consideration published papers that focus on treatment planning and dosimetry which demonstrate situations where PBT has a compelling dose distribution advantage over IMRT.	<i>Please see our response to comment 7 on page 4.</i>
2	Because of the limited number of proton centers until recently, many studies will have small patient numbers. We feel that it is important that such small studies are not excluded on the basis of their patient number.	<i>We appreciate your concerns. We will set sample-size thresholds that are adequately sensitive to the prevalence of the condition under study as well as the realities of the evidence base.</i>
3	Regarding Scope: Comparators (page 2): well conducted registry trials assessing outcome and quality of life will be critical to elucidate the worth of advanced technology in radiation oncology.	<i>Such studies will be included if study selection criteria are met.</i>



	Comment	Response
4	<i>Regarding Scope: Outcomes (page 2):</i> We agree that quality of life concerns are important and these studies are in progress now. This data must be acquired prospectively.	<i>We will accept all published studies that meet study selection criteria.</i>
5	<i>Regarding Scope: Outcomes – cost effectiveness (page 3):</i> Your review should focus on indications and efficacy and not perceived costs when making coverage decisions.	<i>We will review all available information on clinical benefit, potential harm, and economic impact, per HCA mandate.</i>
6	In considering costs to the health care system, it is critically important to consider downstream costs as well as the costs of the initial treatment.	<i>Please see our response to comment 12 on page 5.</i>
7	KQ#1: We feel that recurrent cancer constitutes a distinct entity that should be added as a separate category (i.) into the list.	<i>Please see our response to comment 4 on page 4.</i>
8	Multiple suggested changes to the Table.	<i>As noted in our response to comment 9 on page 4, the Table has been removed to avoid confusion.</i>
9	Available literature listed.	<i>Thank you for these references.</i>
<i>J. Russell Geyer, MD, Hematology/Oncology Program, Seattle Children's Hospital, and Professor of Pediatrics, University of Washington</i>		
1	No specific recommendations or comments on Key Questions.	
<i>Joint letter from The Proton Therapy Consortium, The National Association for Proton Therapy, The Particle Therapy Co-Operative Group-North America, The Alliance of Dedicated Cancer Centers, The Pediatric Proton Foundation, and The Brotherhood of the Balloon</i>		
1	We respectfully request that HTAP adopt the cancer care community's confidence in treatment planning and/or dosimetry tools (and associated studies) as appropriate surrogates until additional clinical evidence is developed.	<i>Please see our response to comment 7 on page 4.</i>
2	We respectfully request that HTAP view cost as the total costs to patients, families, the broader health care system, payors and employers (ie, not just the direct treatment costs which vary significantly by tumor site, cancer center, treatment modality, treatment plan, radiation dose, geographic location, payor, etc.)	<i>Please see our response to comment 12 on page 5.</i>

	Comment	Response
<p><i>Jerry D. Slater, MD, Professor and Chair, Dept. of Radiation Medicine, Loma Linda University Medical Center; and David A. Bush, MD, Professor and Vice Chair, Dept. of Radiation Medicine, Loma Linda University Medical Center</i></p>		
1	Available literature listed.	<i>Thank you for these references.</i>
<p><i>Ramesh Rengan, MD, PhD, Associate Medical Director, SCCA Proton Center, and Associate Professor, Dept. of Radiation Oncology, University of Washington; Shilpen Patel, MD, Associate Professor and Chief, Thoracic Service, Dept. of Radiation Oncology, University of Washington; and Jing Zeng, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington</i></p>		
1	A longer-term view is to incorporate the costs associated with hospital admissions due to acute and subacute toxicities associated with surgery and photon beam radiotherapy when compared with protons.	<i>Please see our response to comment 12 on page 5.</i>
2	Available literature listed.	<i>Thank you for these references.</i>
<p><i>Gail M. Rodriguez, Executive Director, Medical Imaging &amp; Technology Alliance (MITA)</i></p>		
	No specific recommendations or comments on Key Questions.	
<p><i>Ralph Ermoian, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington School of Medicine</i></p>		
1	I think the role of proton radiation therapy in palliative treatment of pediatric patients is very limited.	<i>Please see our response to comment 6 on page 4.</i>
2	The question of secondary malignancies in pediatric patients is pivotal.	<i>Please see our response to comment 10 on page 5.</i>
3	Available literature listed.	<i>Thank you for these references.</i>
<p><i>Smith Apisarnthanarax, MD, Associate Professor; Edward Kim, MD, Assistant Professor, Wui-Jin Koh, MD, Professor; Shilpen Patel, MD, Associate Professor and Chief, Thoracic Service; and Jing Zeng, MD, Assistant Professor; From the Dept. of Radiation Oncology, University of Washington School of Medicine</i></p>		
1	Regarding cost and cost effectiveness of protons, while it is true that PBT carries a greater treatment cost when compared to conventional radiation, the total costs of managing and treating treatment-related toxicities must be taken into consideration when evaluating the costs of PBT versus conventional radiation.	<i>Please see our response to comment 12 on page 5.</i>
2	Available literature listed.	<i>Thank you for these references.</i>

	Comment	Response
<i>L. Christine Fang, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington School of Medicine and SCCA Proton Center</i>		
1	To date, there has not been cost-effectiveness analyses performed (for breast cancer) that incorporates added costs of proton beam therapy, but potential savings in a decrease in long-term toxicity such as cardiac disease and poor cosmetic outcomes.	<i>Please see our response to comment 12 on page 5.</i>
2	Available literature listed.	<i>Thank you for these references.</i>
<i>Nancy Mendenhall, MD, Professor and Associate Chair, Dept. of Radiation Oncology, College of Medicine – Jacksonville, University of Florida and Medical Director, University of Florida Proton Therapy Institute</i>		
1	Lymphoma listed as a cancer of inclusion.	<i>This change has been made.</i>
2	Available literature listed.	<i>Thank you for these references.</i>
<i>Ronny Leone Rotondo, MD, CM, FRCPC, Assistant Professor, University of Florida and University of Florida Proton Therapy Institute</i>		
1	Available literature listed.	<i>Thank you for these references.</i>
<i>Steven E. Schild, MD, Professor and Chair, Dept. of Radiation Oncology, Mayo Clinic, Phoenix, AZ; Robert L. Foote, Professor and Chair, Dept. of Radiation Oncology, Mayo Clinic, Rochester, MN</i>		
1	Regarding Page 2, Paragraph 6: “Studies that focus on treatment planning and/or dosimetry will be excluded, if no data on relevant clinical outcomes and/or associated toxicities are presented.” This statement is potentially damaging to progress in the field of radiation oncology and for future cancer patients.	<i>Please see our response to comment 7 on page 4.</i>
2	Available literature listed.	<i>Thank you for these references.</i>
<i>Diane Priebe, RN, BSN, Manager, Medical Policy, Regence</i>		
1	Key Question #1: Add retinoblastoma to the list of pediatric cancer types.	<i>Use of proton beam therapy for all pediatric cancers will be considered, including retinoblastoma.</i>
2	Key Question #2: Add “... versus major alternatives...”	<i>This change has been made.</i>
3	Key Question #4: Add “... (e.g., dose, duration, timing of intervention, performed with or without surgery)?”	<i>The question has been modified to reflect these considerations.</i>

	<b>Comment</b>	<b>Response</b>
<i>Ed Kim, MD, Assistant Professor, Dept. of Radiation Oncology, University of Washington</i>		
1	Sarcoma listed as a cancer of inclusion.	<i>This change has been made.</i>
2	Available literature listed.	<i>Thank you for these references.</i>
<i>Susan Ralston, Executive Director, Pediatric Proton Foundation</i>		
1	As a mother who faced this situation and succeeded in obtaining proton therapy for my child, I know how important it is to acknowledge the obvious dosimetric advantages of proton therapy for pediatric tumors.	<i>Please see our response to comment 7 on page 4.</i>
<i>Gene Boylan, Milton, MA</i>		
1	In your review of proton beam therapy, I am sure you will consider the true lifecycle costs of proton beam therapy - the treatment as well as the positive quality of life for each man - being physically and emotionally whole.	<i>Please see our response to comment 12 on page 5.</i>
<i>Jeffrey S. Philbin, PhD</i>		
1	It is important to address and compare "total" costs - including the costs to treat negative side effects even years after treatment for all treatment options (surgery, robotic surgery, IMRT, Brachytherapy, PBRT, Ultrasound, etc.).	<i>Please see our response to comment 12 on page 5.</i>
<i>Rich Braun</i>		
1	"... everyone needs to look at the initial and the long term cost."	<i>Please see our response to comment 12 on page 5.</i>
<i>Jerald Parker, PhD</i>		
1	I encourage you to examine the real data on treatment outcomes and long-term cost.	<i>Please see our response to comment 12 on page 5.</i>
<i>Edward Solomon</i>		
1	"... total cost and patient quality of life during a 5 year period..."	<i>Please see our response to comment 12 on page 5.</i>
2	Study by Dr. James Yu at Yale, 2012 mentioned.	<i>Thank you for this reference.</i>
<i>Robert E. Staples</i>		
1	Compare costs on a 5 year span or longer.	<i>Please see our response to comment 12 on page 5.</i>

	Comment	Response
<i>Ray Boland</i>		
1	Please be sure you consider the care following treatment that is required by patients using the various forms of treatment.	<i>Please see our response to comment 12 on page 5.</i>
<i>Robert Tellez</i>		
1	“Any cost evaluation should factor in these costs [of the different treatments, such as ongoing side effects.]”	<i>Please see our response to comment 12 on page 5.</i>
<i>Francis K. Lee</i>		
1	The cost for treatment of adverse sequelae of the treatment must be considered.	<i>Please see our response to comment 12 on page 5.</i>
<i>John D. Gallup III</i>		
1	Look at the overall long term costs.	<i>Please see our response to comment 12 on page 5.</i>
<i>David Drexler</i>		
1	So in brief look at the overall cost and not just the initial cost.	<i>Please see our response to comment 12 on page 5.</i>
<i>David Breen</i>		
1	When considering cost, also consider cost of future treatment of side effects caused by other methods.	<i>Please see our response to comment 12 on page 5.</i>
<i>Peter Grimm, DO, Prostate Cancer Center of Seattle</i>		
1	Available literature listed.	<i>Thank you for these references.</i>
<i>Carl J. Rossi, MD, Medical Director, Scripps Proton Therapy Center</i>		
1	Page 2, Paragraph 6 (“Studies that focus on treatment planning and/or dosimetry will be excluded, if no data on relevant clinical outcomes and/or associated toxicities are presented”). Placing such an arbitrary constraint on any submitted proton data is diametrically opposed to what has been one of the standard methods employed in assessing all radiotherapy advances over the past one hundred years.	<i>Please see our response to comment 7 on page 4.</i>
2	Available literature listed.	<i>Thank you for these references.</i>

	Comment	Response
<i>Peter Davidson</i>		
1	Not sure what the question is. Do you mean using PBT after other treatments have failed (in regard to Key Question 2)?	<i>Yes, the revised question now includes salvage treatment after initial treatment failure as well as treatment of recurrent disease.</i>
2	Please include the associated costs of complications and the inherent cost of degradation of quality of life. I would think that since prostate cancer in particular affects older men that the recovery and associated side effects would be worse with other treatments.	<i>Please see our response to comment 12 on page 5.</i>

We are also grateful to the following individuals for providing general public comment (i.e., not addressing evidence, project scope, or draft key questions) on the topic of proton beam therapy:

- |                           |                          |                        |
|---------------------------|--------------------------|------------------------|
| John Abbis                | Nick Gore                | Dave Palmer            |
| Fred Acosta               | Robert Gore              | John H Park            |
| Bob Adams                 | Lin Graf                 | George Parker          |
| Rev. Dr. Fererico I Agnir | Patrick Graham           | Don Parry              |
| Gary Ahmann               | David Grall              | Bill Pate              |
| John Alberti              | John Grande              | Bill Paukert           |
| Ed Albinak                | Dorwin Grantham          | Diane Peacock          |
| William Alkire            | Patrick Greany           | Steve Peacock          |
| Dale Allen                | Bill Green               | Eileen Peisert         |
| Grant Seth Allison        | Jeffrey Green            | Corinne Pestes         |
| Lori Alter                | Jon Greene               | Steve Peters           |
| David Althoff             | Hank Grillk              | Douglas Peterson       |
| Vicky Althoff             | John Grismer             | John Petote            |
| Sam & Peggy Altman        | Marvin Gross             | John Petrisor          |
| Ivars Ambats              | John Guest               | Dave Phillips          |
| Ross Ament                | Lloyd Guggenberger       | Harold Phillips        |
| Ivan G Ames               | Paul Gustafson, PhD, RKT | Robert Phillips        |
| Jerome Anderson           | Russell Guthrie          | Vernon Phillips        |
| Wanda Anderson            | Steve Gwartney           | Tom Pizzo              |
| Rick Archer               | Gary Hackett             | Melissa Plummer        |
| J Will Arden              | Jerry Hagan              | Dr. Richard W Plummer  |
| Joe Armstrong             | Michael Hagan            | Francis E (Gene) Poast |
| Ray Arnold                | Weldon Hagen             | Karl Poetes            |
| David Ascher              | Dennis Hall              | Virgil Polk            |

Maury Astley	Keith Hall	Jeanne Pollard
Doug Ayer	Phil Hall	Mel J Pond
Lee Ayers	James Hallihan	Gloria M Pond
Sheri Ayers	Ronald Handy	Ken Pope
Walter B Ayers, Jr, PhD	Paul C Hannah	Walt Prewett
Bill Babcock	Melissa Harcrow	Bob Prongay
Jerry Baker	Craig Hardy	Dr. Vern B Pulver
Jeff Balfourt	Troy Harless	Sharon Purcell
Alfred Balitzer	Gerri Harrand	Pat Purcell, MBA
Leo Ballos	Jim Harrington	Vernon Putz
John Bankston	Robert H Harris	Don Quackenbush
Philip B Bannan	Jack Harris	Rich Quinn
Al Barber	Michael D Hart	Jennings O Raff
John Barna-Lloyd	Gene Hart	Randall Raffanti
Jim Barnett	Richard Hart	Bud Ralston
Barbara Barr	Buddy Hartsook	Jim Ralston
Darrell Barr	John A Hartwig Jr, CPA	Kent Ramsey
Larry Bartlett	Richard Hartzler	Marshall M Rankowitz
Greg Bartoletti	Mike Harvey	Leo Ranzolin
Derold Bates	Bill Hathaway	Edmund Rawson
Marvin Bates	Robert F Haughn	Robert Reeves
Richard Battaglia	Robert M Hawkins	Steve Rehfeldt
Anthony Battista	Randy Hay	Robert H Reinert
Sherrie Battista	Darrell Haynes	L. Philip Reiss
Ed Bauman	Tim Heckel	Kathleen Rey
Karl Bawden	Rhonda Hedrick	Warren Reynolds
Bill Beason	Jimmy Heisz	John L Richard
Irving Becker	Douglas Helming	John A Richards Jr
Frank Bell	Robbin Henderson	Jene Richart
Philip Bender	Kyle Hendren	Ronald Riffel
Bill Bennett	Ron Hendricks	Ed Risley
Howard Bennis, EMT-P	Eliot M Herman, PhD	Robert Roberson
Dr. H J Bergman	Bobby F Herring	Sergio Robleto
Arnie Berman	Howard Highfill	Richard Roelke
Theodore S Bettwy, PhD	Jeanette Highfill	Frank Rogers
John Biggers	Gary Hilde	Pierre Rogers
Alma Bingner	Frank Hilfer	Bruce Ronald
John H Bingner	Shaun Hilton	Lisa Root

---

Jim Black	Ed Hines	Dan Ross
Bill Bleil	Robert Hively	Tom Ross
Jock B Bliss	William C Hogan, Jr	David T Rouse
Louise Bliss	Daniel Hoile Sr	Charles Ruscha
Warren Bliss	John E Hollis	Charles P Rush
Robert I Blixt	Wil Holloway	Michael Rush
Bill Bloebaum	Lorraine Holmes	Douglas K Rusk, Esq
C. A. Bloodgood	Larry Hopkins	Roy Russell
Donna Bodino	Dan Hopper	Billy E Rutherford, EVOCITR
Walter Bogert	Patricia Hopper	Stephen Sadle
Tom Bomkamp	Rex Hopson	Logan Sage
William Bond	Sydney Horn	Gene Samford
Allen Bonner	Gene Horner	Bob Samson
Arlyn Boone	Marilyn Horween	Ralph A Sanford
Rich Bouska	Lisa Hough	Donald Santella
Michael J Bouvier	Franklin House	Chester Sautter
Cody Bowen	Bob Hudgins	Phil Schad
	David A Hufton, CIV PFFA TAC (US)	Uwe R Schick
Gene Boylan	Robert Hunter	John Schmidt
Tandy Bozeman	Steven E Ipson	Earl E Schoenwetter
Jennifer Brazell	Paul Irey	Ted Schultze
J W Brennan	Richard Ivy	Neil Scialla
Wes Brenneman	Chester Jakubowski	Howard C Seely, MD
Ralph E Bresee	Don James	Michael Seidler
Ric Bridges	Frédy Jaques	Guyla Sellers
Bill Brower	Do A Jean	Ken Selover
Daun Brown	Julie Jean	Nicole Sherlock
Hermann Buerger	Donald C Jensen	Paul Siano
Gordon W Bullock	Donald Jesudason	Vince Sica
Ted Bunten	Warren Johns	Martin Siemens
Gary N Burnett	Paul D Johnson	Paul Sill
Kevin Burns	Dennis Johnson	Roland Simard
Gene Burr	Dwight Johnson	Robert Simmons
Warren Bury	Curtis E Jones	Don Simroth
Brian Butchko	Cal Jones	Douglas J Skarsten
Dan Butts	Frank Jones	Jerry Skyles
Robert B whit	Kelly Jones	Michael Skyles
Donald Byrd		



Ed Campbell	Mark Jones	Sarah Skyles
William Campbell	Peter M Kaley	Gerry Slakoff
Susan Carlisle	Ken Kalin	Victor A Smith
Rock Carlo	Warren Kalkhof	Albert C Smith
Ken Carlson	Ray Kamka	Art Smith
John Carpenter	Greg Kampa	Pat Smith
Paul Carpenter	David Kantor	Phil Smith
Russell Carr	Sandra Karstens	Richard Smith
Randolph J Carr	Mike Kastl	William Smith
Ewing Carroll	John Kaufmann	Thomas Smithson
Richard Carter	Eammonn Keegan	Les Smoot
Robert Cass	Jim Keller	Eugene A Solseth
Richard M Caton	Mike Kelsey	David Sousa
Mike Caulder	Jennifer Kemp	H D Spain
Terry & Fiore Celano	M J Kendel	Ordean Spande
Joseph S Celia	Jim Kennedy	Mary Ellen Sparks
Mark Chalupsky	John Kippley	Clayton Sparks
M. Chambers, IEEE	Eric Kirchmann	Bob Speer
Russ Chandler	Kerry Kjos	Bill Spencer
Steve Chastain	Jane Klawitter	Lee A Spielman
Kenneth Cheek	Jerry Klein	Richie Splitt
Lloyd Chelli	Jim Kneepkens	Bill Sprow
Dick Childers	John Knight	Alfred Spruell
Paul Christensen	Dale Knudtson	Joel Stahl
Jerry Cimino	Jerry Kolar	Bob Starcher
Juliemae C Clark	Harold Koletsky	Kraig Stemme
Dewayne Clark	Ron Konkel	Fred Stephenson
William Clark	Barbara Kopp	Bill & Sylvia Stevens
Charles H Cleveland	Donald Kozyra	Garry Stevens
Marv Cline	Joseph Krackenfels	John Stevens
Richard Coila	Norman Kramer	Stephen Stockley
Roy Collins	Jay Krinsky	Bob Stocks
Tandy Collins	Richard Krutenat	Bob Strauss
Cyril Connelly	Charles Kubrock	Lawrence Sucsy
Jim Conrad	Bob Kuchinski	Ed Sullivan
Jack Cook	A. Kulanko	William Sutcliffe
Pat Coomes	Les Kumpula	Dennis R Swanson
Jim Cope	John Kuykendall	David Talisman

Steven Corey	Jim Lacey	Lawrence C Talmadge
Jim Costello	Richard Lackey	Michael Tarby
Dennis Coulter	Randy Lake	Ramon Taruc
Terry Crider	Cathy Lamarre	Jeff Taylor
Marilyn Cripe	Eric Lamarre	Robert Teitler
Linda Crosby	Richard Lambert	Curtis Templeton
Don Cross	David Landry	Michael Terranova
Kevin Crowley	Teresa Landry	Candy Thomas
John Crowther	Jan F Larsen	Carl Thomas
Bjorn Dahl	Joyce Larson	Clark Thomas
Benton Dale	Donald R Lathrop	Tony Thorpe
Thomas M Dalton	Don Lauser	Jay A Thurber
Tom Daly	Lynn Laws, PhD	LM Thurber
Philip Damico	Michael R Layman	Michael Tinker
Ivan Dassenko	Alan Leahigh	John Toman
Joan Davanzo	Sam Lee	Richard Tomassini
Alisa Davenport	Calvin Leibelt	Samuel Topal, MD
Tim Davenport	Linda Lemas	Craig Torbitt
William R Day	John W Lemm	Merton L Townsend
Ade De Blasio	Tom LeValley	Ross Truesdale
Donald De Blonk	Thomas Lewis	Eric Tsao, MD
V/R Steve Dee	Norm Lillibridge	Howard Tuggey
Thomas Deeney	Dean Lind	Rick Tunnell
Donald DeHart	David J Loadman	TB Turnbull
Mrs. Del Karlstrum	Dick Lohof	Bill Turner
Lyle Delano	John Lorant	Neal Turner
Dennis DeLaPaz	Carter Lord	Craig Turns
John Delatore	David Lounsberry	Cathy Turpin
Kenneth R denDulk	William H Low	Rick Uhlig
John Depew	Neil E Loy	Robert Unthank
Paul DeWitt	Ron Lueck	David Vahlsing
Rose Di Rocco	Bob Lynch	Gary Van Assen
Ken Dieffenbach	John Maben	David A Van Landschoot
Ed Dietz	Linda MacDonald	James Vanaman
Donna Meredith Dixon	Betty MacFarland	Richard Vance
Bruce Docter	Steve MacFarland	Bill Vancil
Deborah Dowis	Ruprecht 'Rupert' Machleidt	Dean M Vander Stoep
Carrie Drews	Charlie Mack	Tom Varco

Fred Drews	Jim MacKenzie	Guy Veasey
Michael DuCros	Melvin Mackey	Susan Vincent
David Duncan	Steve Mahl	John R Vincenti
Fiona Duncan	Gene Mahler	Andrew Viola
Brad Dunham	Chuck Malacarne	Alfred Vismer
Winston Duvall	Cheryl Manley	Chuck Vivian
Ed Eaton	Paul Mannino	Steve Voluckas
Judy Eberhardt	Jeff Manz	Kenneth Voorhees
Grant H Eberly	Suzy Margsh	Craig Wadsworth
Michael Y Edmonds	Robert S Mariger	Tony Wagoner
	Joseph J Marino, CWM, MFP, RFS, FAAFM	Frank Walker
Raymond Edwards	Ronald Marsh	Robert Walter
Walt Egan	Jim Martin	Conrad Walton
Bruce Eierman	Kenneth Martin	Paul Warman
Jerry Elliott	Ron Mason	Chief Warrant Officer,
Gordon Elmes	Bob Masterson	Carol Warren
Gary Emmons	Dr. Dennis Maynard	David Washburn
Richard Enders	William Mayo	Shawn Washinko, GRI
Ron Erickson	Robert McAllister	James Watt
Gary Evans	Sharon McDowell	Eddie Watts
Robert Everts	Michael McEntee	George T Weathers, PhD
Harry Fagedes	Michael McFarland	Gary Webb
Lawrence Falzone	Hal McGaughey	J.A. Weber
Ed Fancher	Greta McGowen	Craig Weeks
Sherri Farley	Bill McKelvey	David Weir
Stanley Farley	Kevin McLaughlin	Steve Weitzman
Sharon Farmer	Leon Means	John Welch
Guy W Farmer	Michael K Melcher	H. Terry Wepsic, MD
Ron Farrell	Ray Melcher	James Werth
Gordon H Farrell	Terre Meth	Everett West
Michael Fedo	Dennis Micaletti	David Westcott
Timothy Feldheim	Jim Miears	Jerry Westin
Bud Fennema	Tom Miles	Del Wharton
Jerry Ferguson	D. Douglas Miller	Joe Wharton
Mike Fife	Glen Miller	Robert Wheaton
Arnold Finkelstein	Judy Miller	Linda Wheeler
Dick Fischer	Harold Mills	Christopher White
Peggy Fischer		

Dennis Fisher	Roland J Minard	John White
Allen Fitch	Reed Mitchell	Gaylon Whiteside
James Fitzgerald	Susan Mitchell	Jerry Wiant
Ned Fleming	Ronald E Mitchell Sr	Bob Widmann
Nancy Flodin	John Moffitt	Myron D Wiles
Robert Floyd	John Monroe	Richard Williams
John Fogarty	Roger Monsanto	Ed Willson
Bill Forbes	Tom Montanya	Gerald Wilson
Pat Fortney	Robert E Moody	Lew Wilson
Mr. Foster	Gene L Moore	Neil Wilson
Jennifer A Fredericks	Nathan Moore	Larry Winchell
Bob Freeland	Steve Moore	Robert Wischner
Bill Frick	Yale Mosk	Teri Wise
Stephen Friedman	Glenn Mueller	Dan Withers
Art Frigo	Laurina Mundall	Mark Wood
Ken Frizzell	William Murphy	Steve Wood
Bill Fuchs	Richard Nason	Robert Wood & Spouse
John Fulton	Dick Nelson	Bert Woods
Betty Jane Galloway	Donna L Nelson, RN, BS	Gordon Wordal
Robert Gary	Ralph P Newell	Robert Wright
Donald Gaskin	Tom Newkirk	Thomas Wright
Chuck Gastineau	Teresa Newman	Stephen Wukelich
Franklin Gearhart	Peter Nicholas	Marcus C Wulf
Nancy Geer	Jack Nichols	Bruce Wulf
Alon Genazia	George Nielsen	Ron Wynne
Steve Geoffrey	Charles H Nierling	Dr. Ronald Yedloutschnig
Eugene Gerber	Terry Noetzel	Marc Yoder
William Gerber	Don Norberg	Cliff York
Ben Gero	Tom Norman	Cherry Young
Garry Gibbs	Jeff Novak	Robert Young
Paul Gibson	Don Oberlin	Elten Zerby
Stacy Gibson	Howard O'Brien	Edward Zneimer
Don Giffels	Ricahrd Oftedahl	Dale Zumbaugh
Steve Gillham	Stephen Ohanian	Den
Robert Gilliatt	George O'Keefe	Eric
Jack Gillikin	Lester Orr	Gary I
Chuck Giordano	Lou Osberg	Harvey
Howard Glenn	Debbie Osterberg	Jim

Robert Glombowski

Gary Goetsch

Edward Gogin

Joseph Goitia

Walter M Golonka

Robert E Ostrom

Ellen Oulundsen

Harry Oulundsen

Ralph Overfield

Douglas A Palecek

Jordan

Paul

R Y

Ralph

Thomas