

TARPSWG: A History in Brief

Chandrajit P Raut, MD, MSc

*TARPSWG at CTOS Annual Meeting
November 10, 2021*

Historical Data

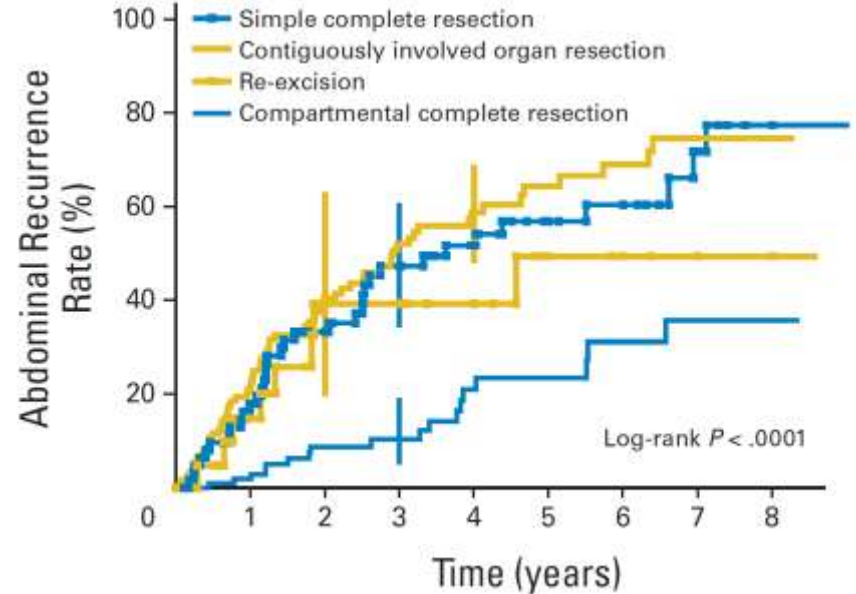
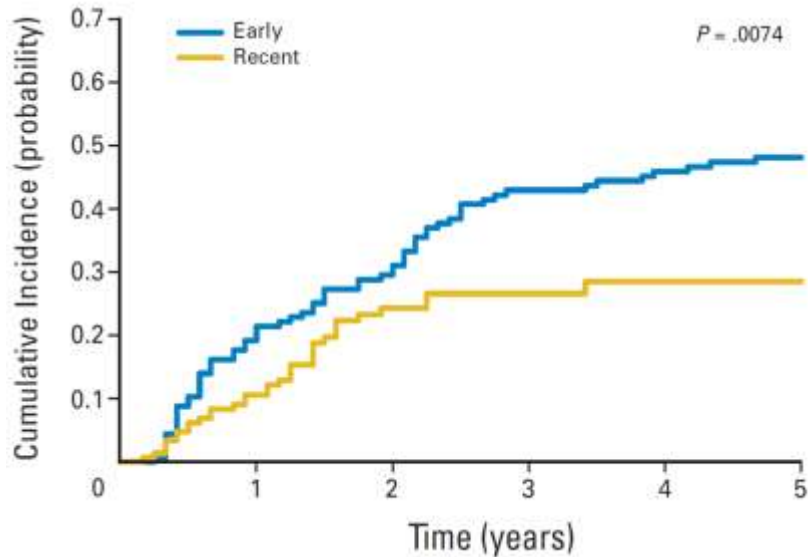
Study	Study Period	# of Pts	% Complete Resection	5-Yr OS (%)	10-Yr OS (%)
Lewis, 1998	1982-1997	231	80 %	54	35
Stoeckle, 2001	1980-1994	145	65 %	49	NR
Karakousis, 2003	1977-2001	130	95 %	60	48
Dalton, 1989	1963-1982	116	54 %	59	NR
Catton, 1994					14
Singer, 1995					50
Kilkenny, 1996					37
Gronchi, 2004	1982-2001	167	88 %	54	27
Hassan, 2004	1983-1995	97	78%	51	36
Van Dalen, 2007	1989-1994	143	55%	39	21
Ballo, 2007	1960-2003	83	52%	NR	44
Lehnert, 2009	1998-2002	110	67%	49	NR
Anaya, 2009	1996-2006	393	78%	54%	NR
Strauss, 2010	1990-2009	200	85%	69	NR

10-yr OS 30-40%

Historical Data

Study	Study period	No.of pts	Median F/U (mo)	% Complete Resection	5-year OS (%)	5-year LRFS (%)
Lewis 1998	1982-1997	231	28	80	54	59
Stoeckle, 2001	1980-1994	145	47	65	49	42
Ferrario	1977-2001	79	41	99	65	43
Kilkenny, 1996	1970-1994	5-yr LRFS 40-50%			48	NR
Gronchi, 2004	1982-2001				54	46
Hassan, 2004	1983-1995	97	36	55	51	56
Van Dalen, 2007	1989-1994	143	122	70	39	NR
Lehnert, 2009	1998-2002	71	89	85	51	59
Strauss, 2010	1990-2009	200	29	90	68	55

Compartmental vs Simple Complete Resection





Milan, December 2013

Mt Sinai Hospital, Princess Margaret Hospital, University of Toronto, **Toronto**, Canada

Brigham and Women's Hospital/Dana-Farber Cancer Institute, **Boston**, MA, USA

Royal Marsden Hospital, **London**, UK

Istituto Nazionale dei Tumori, **Milan**, Italy

Institut Gustave Roussy, **Villejuif**, France

Mannheim University Hospital, **Mannheim**, Germany

Netherlands Cancer Institute, **Amsterdam**, Netherlands

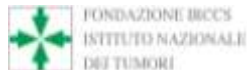
Maria Sklodowska-Curie Memorial Cancer Center, **Warsaw**, Poland

- 
- Debated institutional evaluation and operative details
 - Compared data
 - **Goal:** improve knowledge and outcomes in pts with RPS

Variability in Patterns of Recurrence After Resection of Primary Retroperitoneal Sarcoma (RPS)

A Report on 1007 Patients From the Multi-institutional Collaborative RPS Working Group

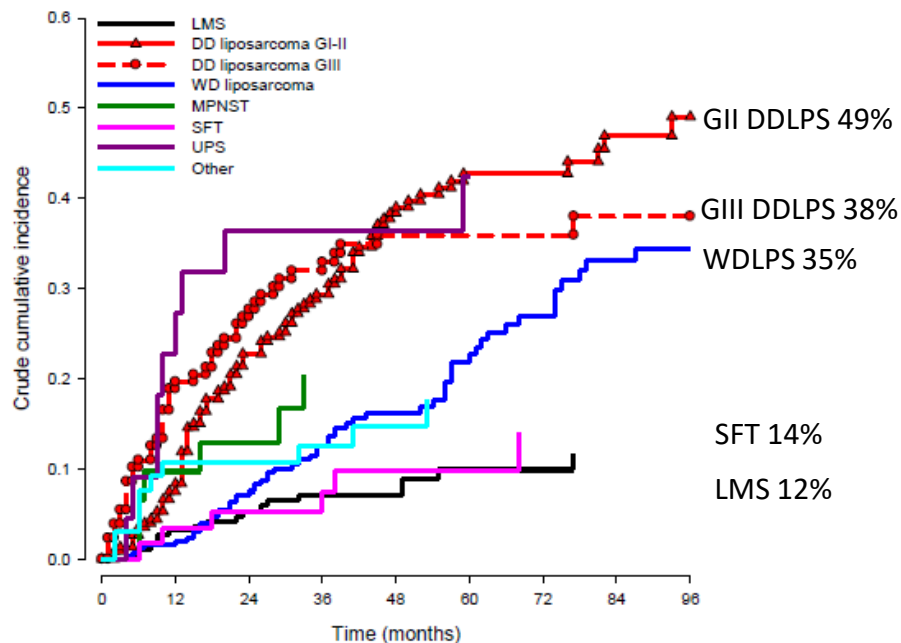
Alessandro Gronchi, MD, Dirk C. Strauss, MD,† Rosalba Miceli, MD, PhD,‡ Sylvie Bonvalot, MD, PhD,§ Carol J. Swallow, MD,¶ Peter Hohenberger, MD,|| Frits Van Coevorden, MD,** Piotr Rutkowski, MD,†† Dario Callegaro, MD,* Andrew J. Hayes, MD, PhD,† Charles Honoré, MD,§ Mark Fairweather, MD,‡‡ Amanda Cannell, MD,¶ Jens Jakob, MD,|| Rick L. Haas, MD,§§ Milena Szacht, MD,†† Marco Fiore, MD,* Paolo G. Casali, MD,¶¶ Raphael E. Pollock, MD, PhD,|||| and Chandrajit P. Raut, MD‡‡*



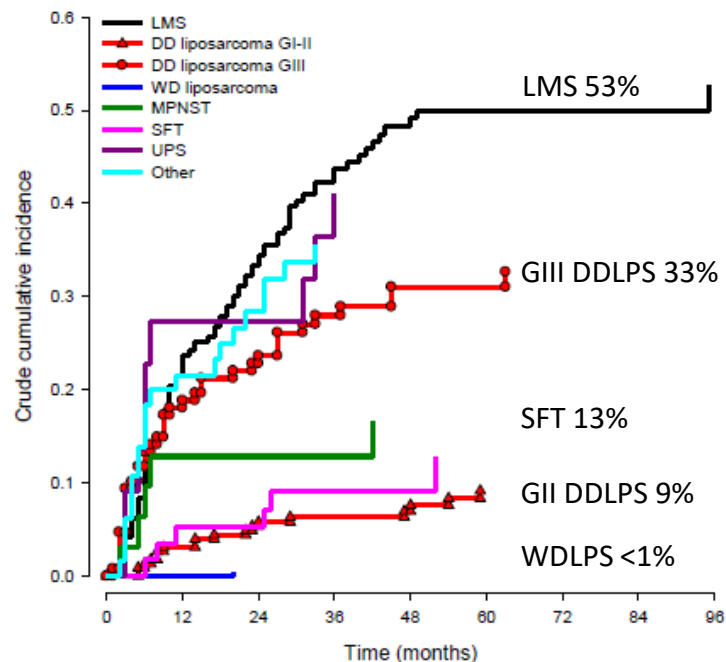
Recurrence by Histology

1007 Patients

Local Recurrence



Distant Metastases





Primary RPS Nomogram

Feasibility of Collaboration

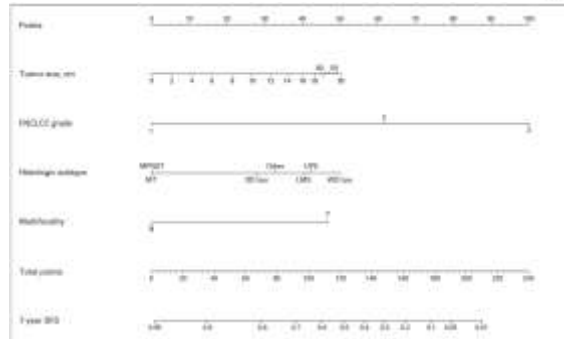
VOLUME 31 • NUMBER 13 • MAY 1, 2013

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

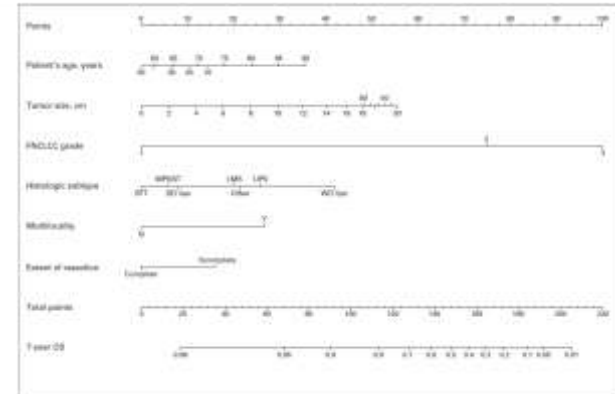
Outcome Prediction in Primary Resected Retroperitoneal Soft Tissue Sarcoma: Histology-Specific Overall Survival and Disease-Free Survival Nomograms Built on Major Sarcoma Center Data Sets

Alessandro Gronchi, Rosalba Miceli, Elizabeth Shurell, Fritz C. Eilber, Frederick R. Eilber, Daniel A. Araya, Michael W. Kattan, Charles Horvath, Dima C. Lev, Chiara Colombo, Sylvie Bannulat, Luigi Mariani, and Raphael E. Poellack



DFS

OS



Operative Approaches

Feasibility of Consensus

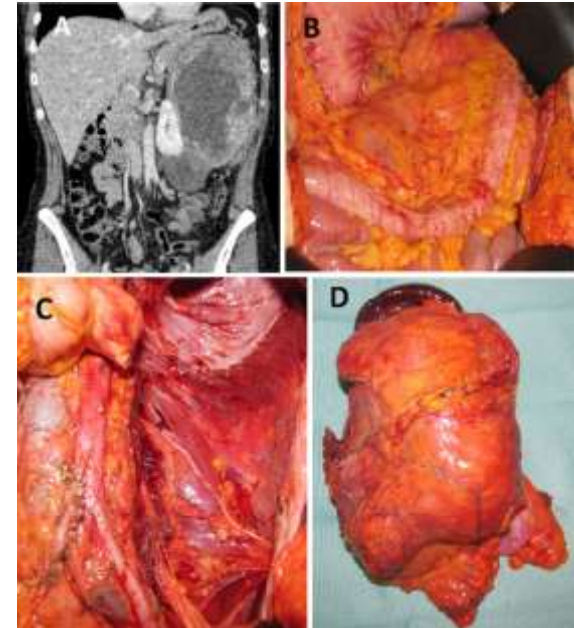
Ann Surg Oncol
DOI 10.1245/s10434-012-2342-2

Annals of
SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

ORIGINAL ARTICLE – BONE AND SOFT TISSUE SARCOMAS

Technical Considerations in Surgery for Retroperitoneal Sarcomas: Position Paper from E-Surge, a Master Class in Sarcoma Surgery, and EORTC–STBSG

Syvie Bonvalot, MD, PhD¹, Chandrajit P. Raut, MD, MSc², Raphael E. Pollock, MD, PhD³, Piotr Rutkowski, MD⁴, Dirk C. Strauss, MD⁵, Andrew J. Hayes, MD⁵, Frits Van Coevorden, MD⁶, Marco Fiore, MD⁷, Eberhard Stoeckle, MD⁸, Peter Hohenberger, MD, PhD⁹, and Alessandro Gronchi, MD⁷





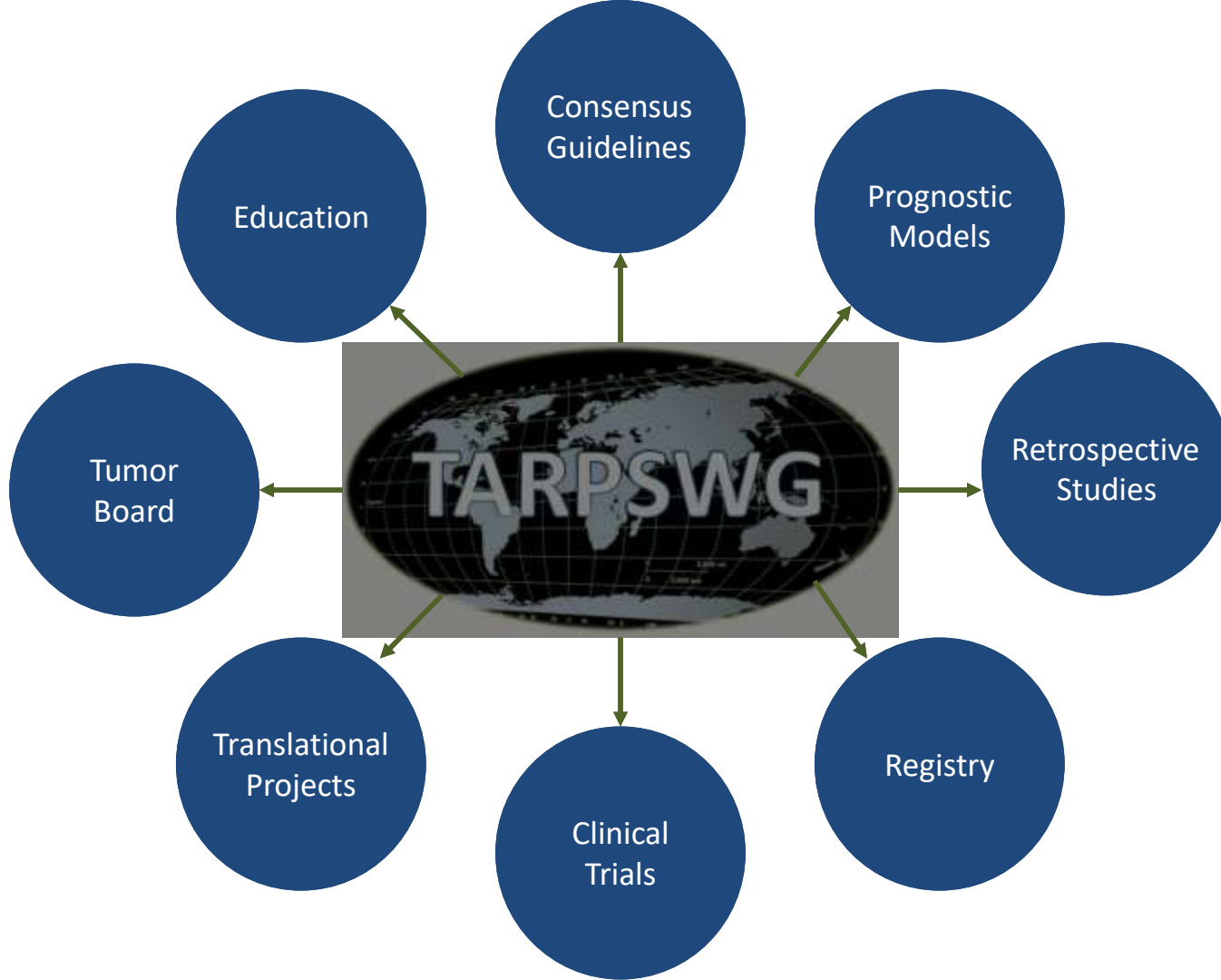
December 2013

Continent	Countries	Centers
Europe	6	6
North America	2	2

***“Transatlantic Australasian Retroperitoneal
Sarcoma Working Group”***

September 2021

Continent	Countries	Centers
Europe	23	65
North America	2	53
Central/South America	7	15
Asia	12	20
Oceania	1	7
Africa	0	0
Total	45	160





Consensus Guidelines

Primary RPS

Recurrent RPS

Metastatic RPS



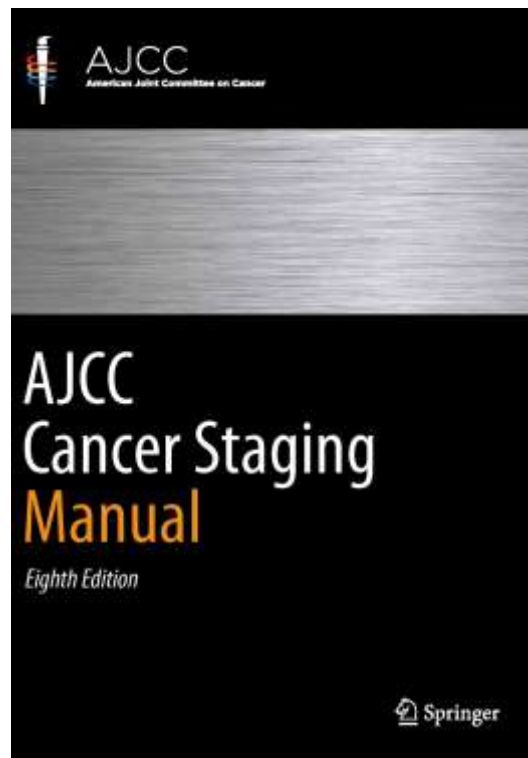
TARPSWG, Ann Surg Oncol 2015

TARPSWG, Ann Surg Oncol 2016

TARPSWG, Ann Oncol 2018

Swallow et al, Ann Surg Oncol 2021

RPS Nomogram and AJCC Staging



“These are large patient cohorts for this rare disease and robustly confirm the usefulness of this model.”

Gronchi et al, *J Clin Oncol* 2013

Raut et al, *Cancer* 2016



22 Centers

684 pts underwent surgery for 1st LR
2002-2011



82 pts excluded – incomplete data

N=602

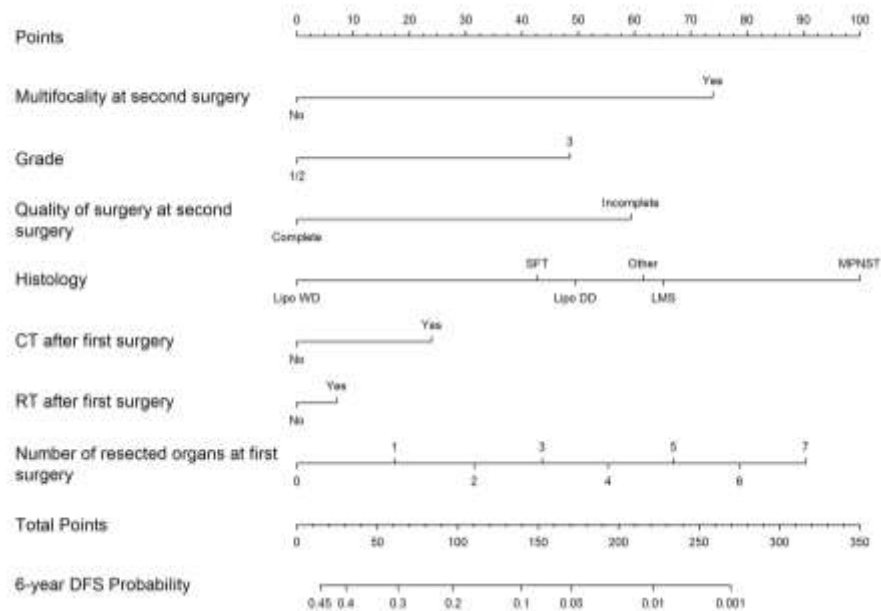
Initial surgery for 1^o RPS

188 pts (31%) at 22 participating institutions

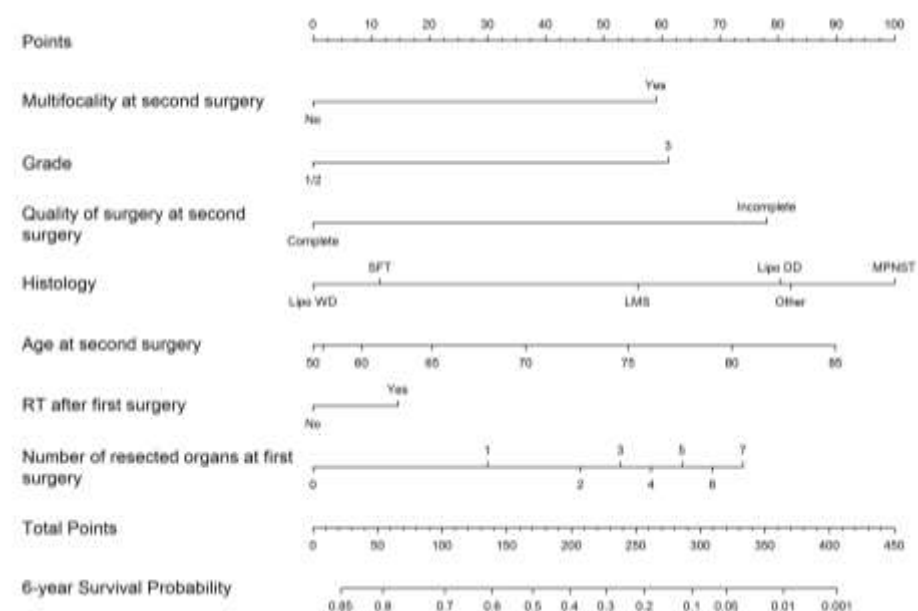
414 pts (69%) at referring institutions

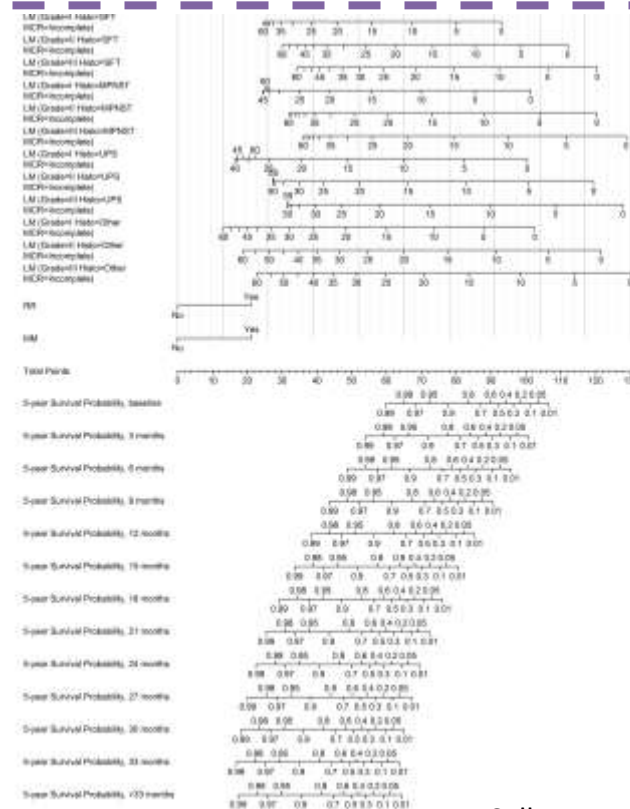
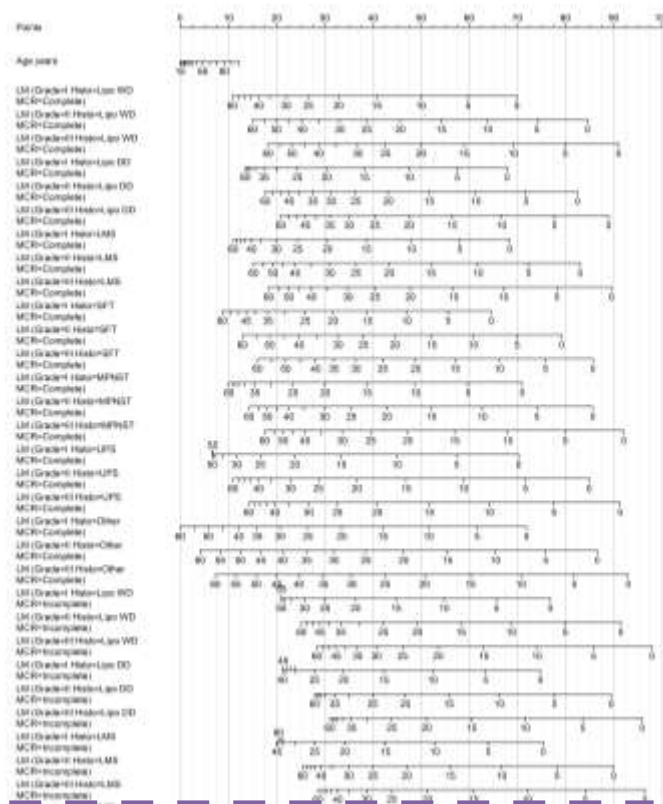
Locally Recurrent RPS Nomogram

Disease-Free Survival



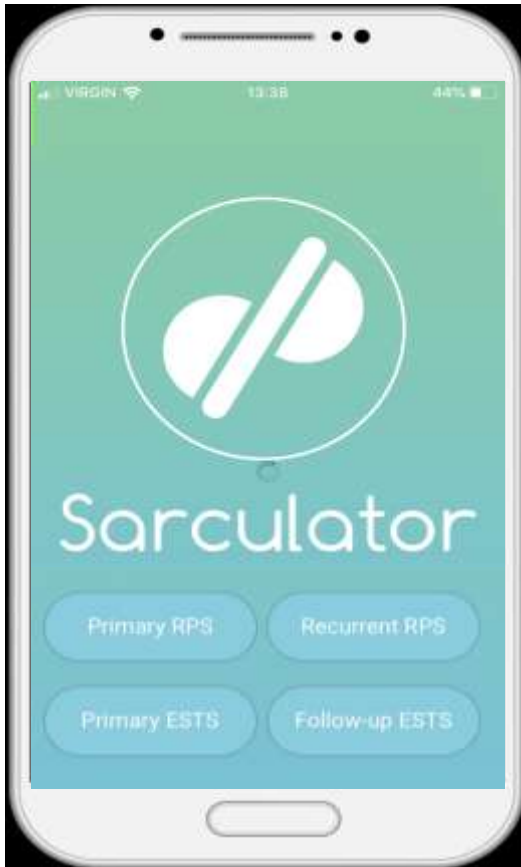
Overall Survival







Sarculator App

The input screen of the Sarculator app, titled 'PRIMARY RPS'. It contains several input fields for patient and tumor data:

- AGE (10-90): 64
- TUMOR SIZE (0-80 CM): 20
- GRADE: 3
- HISTOLOGY: DD LPS
- MULTIFOCALITY: N
- COMPLETENESS OF RESECTION: COMPLETE

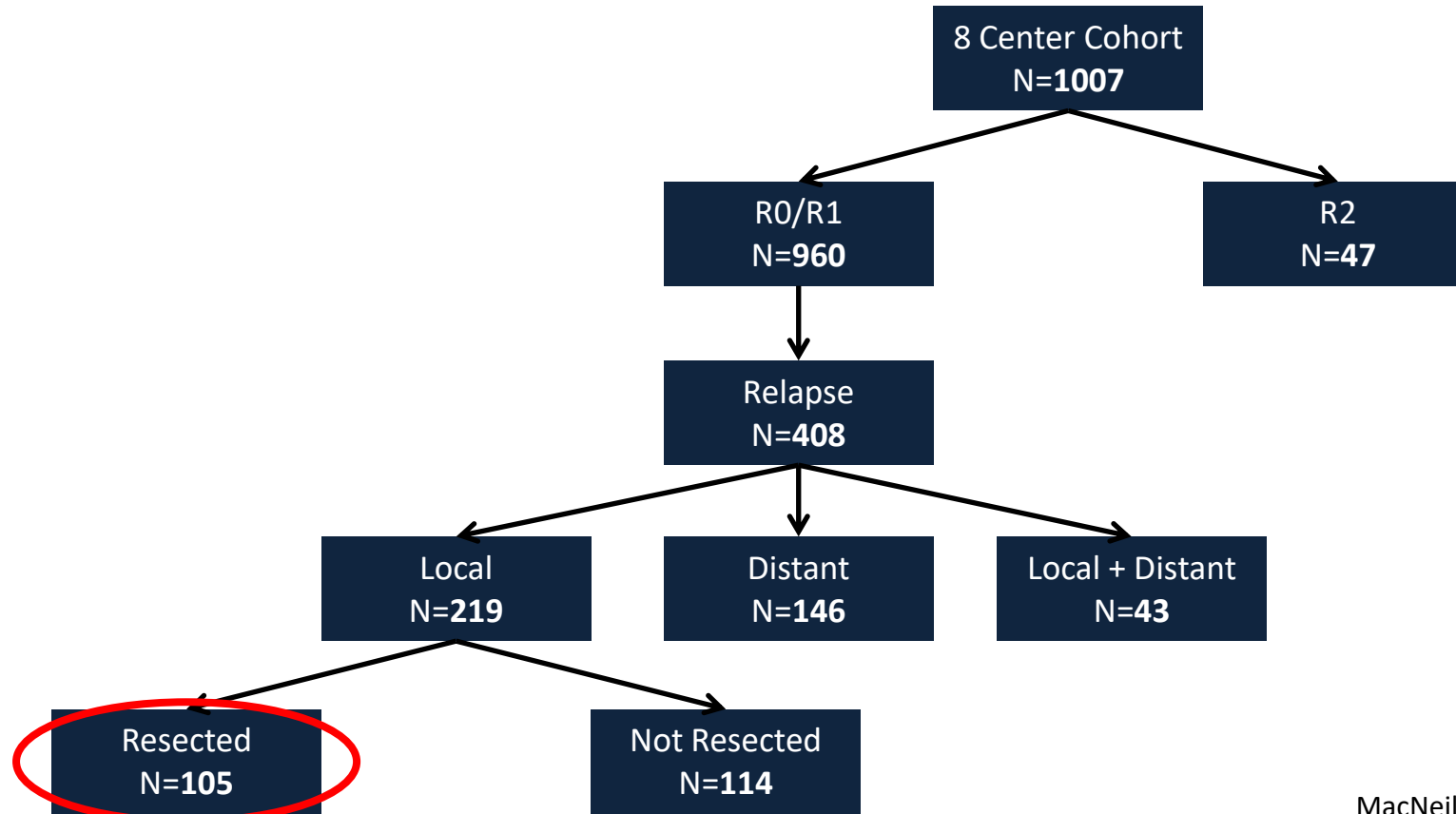




RPS Projects

1 st Author (Center)	Citation	Topic	Patient #	Center #
Raut (Boston)	<i>Cancer</i> 2016	Primary RPS – nomogram validation	1154	9
MacNeil (Toronto)	<i>Cancer</i> 2017	Primary RPS – post-resection outcomes	1007	8
MacNeil (Toronto)	<i>Ann Surg</i> 2018	Primary RPS – morbidity and mortality	1007	8
Tseng (Los Angeles)	<i>Eur J Surg Oncol</i> 2018	Primary RPS – Whipple procedure	29	10
Haas (Amsterdam)	<i>Cancer</i> 2019	Primary RP liposarcoma – radiation	607	8
Raut (Boston)	<i>Clin Cancer Res</i> 2019	Recurrent RPS – outcomes and nomogram	684	22
van Houdt (Amsterdam)	<i>Cancer</i> 2020	Recurrent RPS – post-resection outcomes	681	22
Ford (Birmingham)	<i>Br J Surg</i> 2020	RP Schwannoma	485	12
Tseng (Los Angeles)	<i>Cancer</i> 2020	Primary high-risk RPS – chemotherapy	158	13
Nessim (Ottawa)	<i>Ann Surg Oncol</i> 2021	Recurrent RPS – morbidity and mortality	681	22
Nessim (Ottawa)	<i>Ann Surg Oncol</i> 2021	Recurrent RP liposarcoma – grade change	681	22
Bagaria (Jacksonville)	<i>Ann Surg Oncol</i> 2021	Primary RPS – distal pancreatectomy	280	26
Tattersall (Birmingham)	<i>J Surg Oncol</i> 2021	Mesenteric sarcoma	56	15
Callegaro (Milan)	<i>Eur J Cancer</i> 2021	Primary RPS – dynamic nomogram	1942	10
Callegaro (Milan)	<i>Ann Surg Oncol</i> 2021	Primary RPS – 15-year time trends	1942	10

Post-Resection Outcomes: Primary RPS

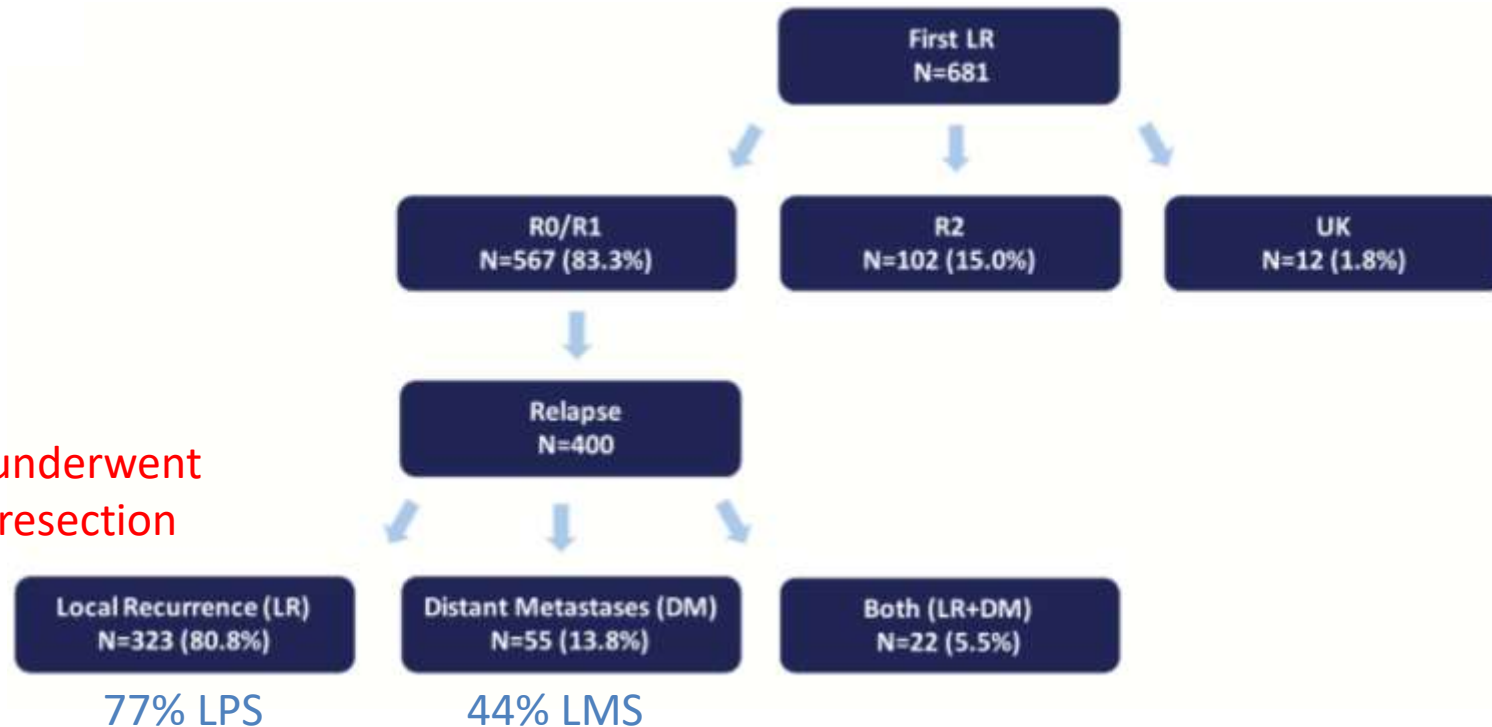




First Events

After Second Surgery

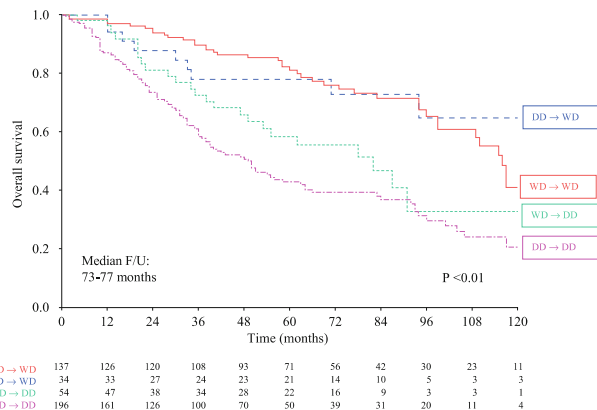
200 underwent
2nd resection



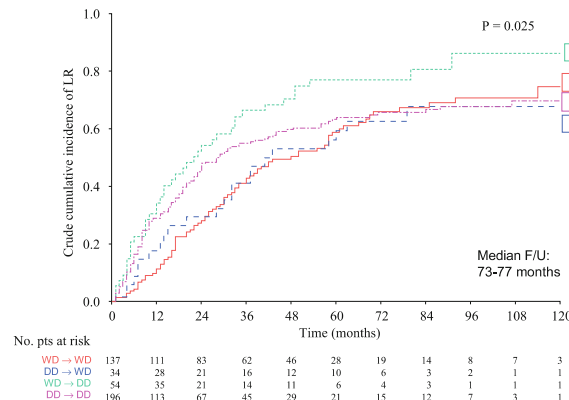
Change in LPS Differentiation

Primary to First Recurrence

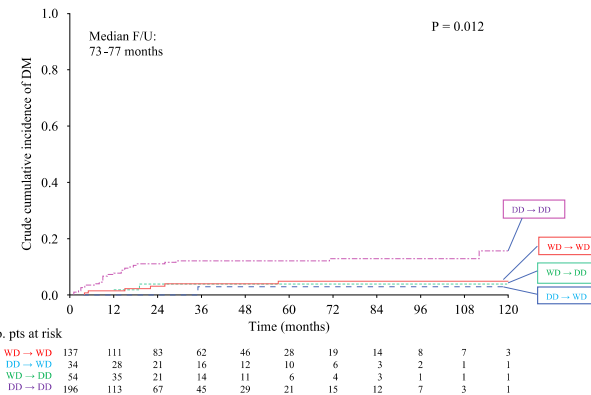
OS



LR



DM



- DD → WD = better OS
- WD → DD = worse OS and LR



Morbidity and Mortality

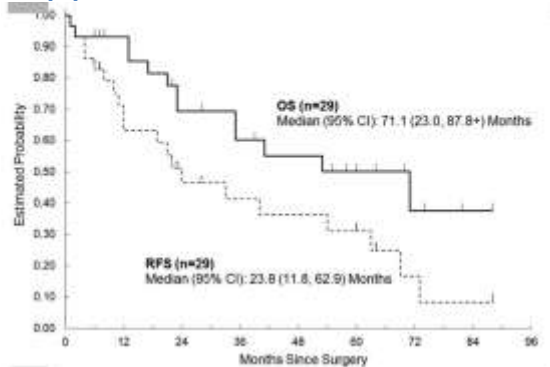
Within 30 Days

First Events	Primary RPS <i>1007 Pts</i> N (%)	Locally Recurrent <i>681 Pts</i> N (%)
Grade ≥ 3 Complications	165 (16)	109 (16)
Death	18 (1.8)	3 (0.4)
Reoperation	106 (11)	74 (12)

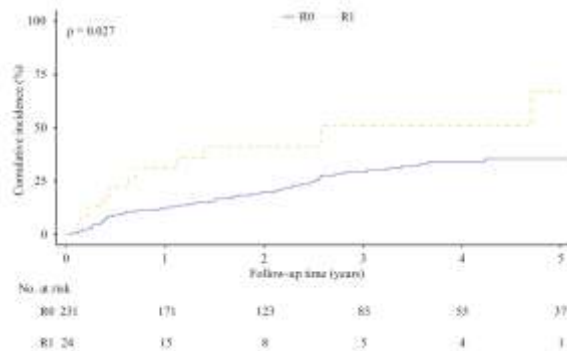


Pancreatectomy

Whipple



Distal Pancreatectomy



	Whipple N (%)	Distal Pancreatectomy N (%)
Frequency	29/2068 (1.4)	280/1114 (25)
Clavien-Dindo ≥ 3	10 (34)	111 (40)
Pancreatic leak	8 (28)	66 (24)
Mortality 90 day	1 (3.4)	(7)
Reoperation	5 (17)	
Pancreatic invasion	21 (72)	107 (38)



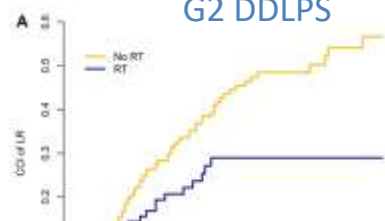
Neoadjuvant Therapies

Radiotherapy

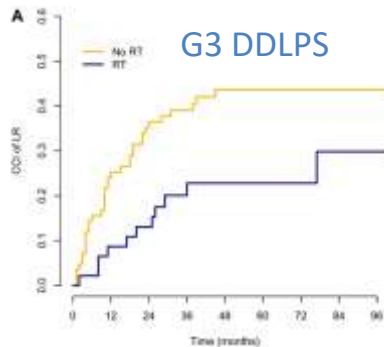
WDLPS



G2 DDLPS

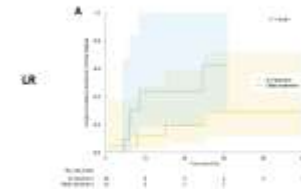


- No improvement in local control after propensity score matched analysis

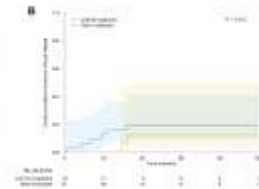


Chemotherapy

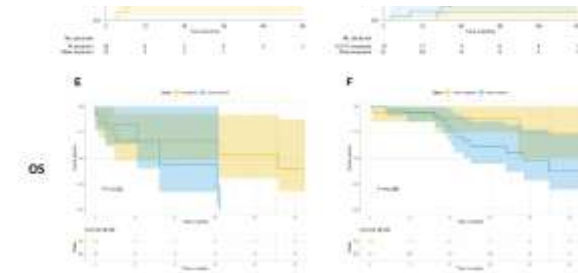
G3 DD



LMS

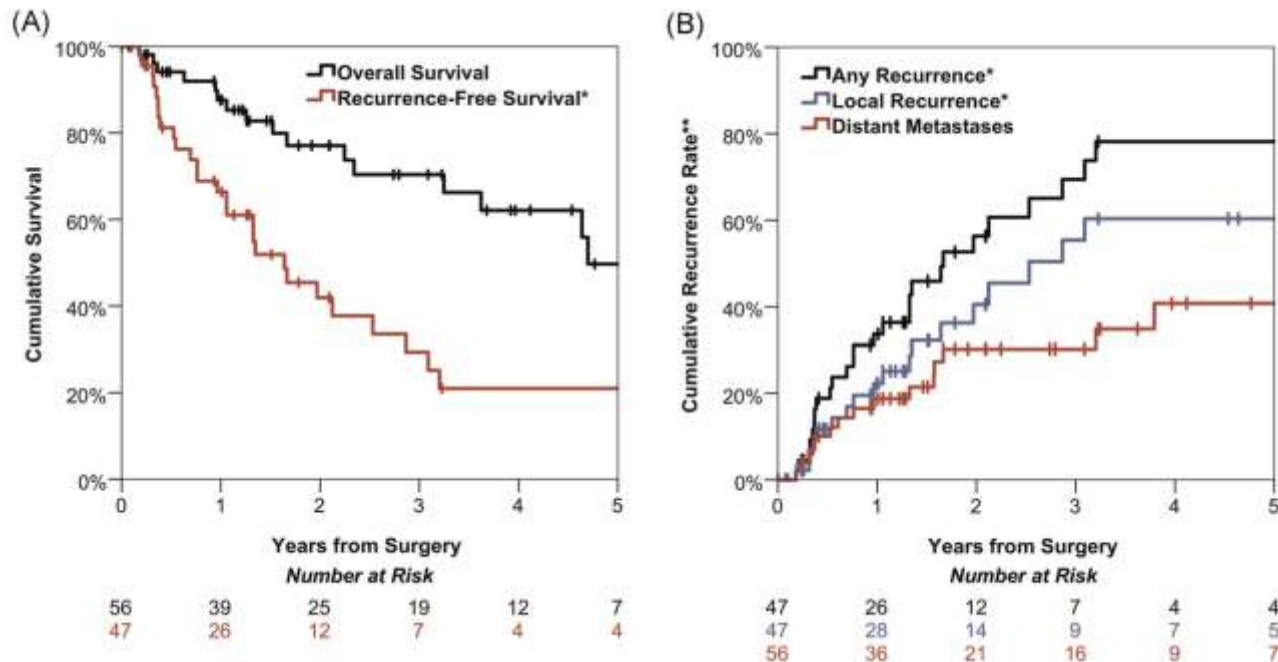


- 79% response = PR (23%) + SD (56%)
- PD (21%) associated with worse outcomes





Mesenteric Sarcomas



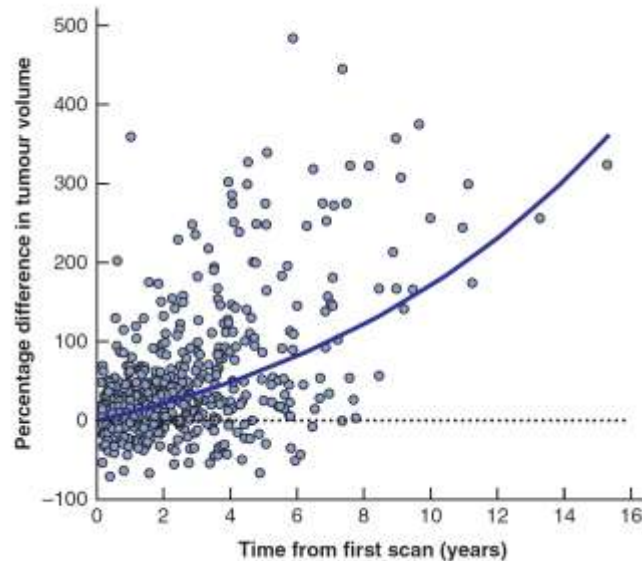
- Median OS <5 yrs
- Predictors: grade, completeness of resection
- Liver metastases common



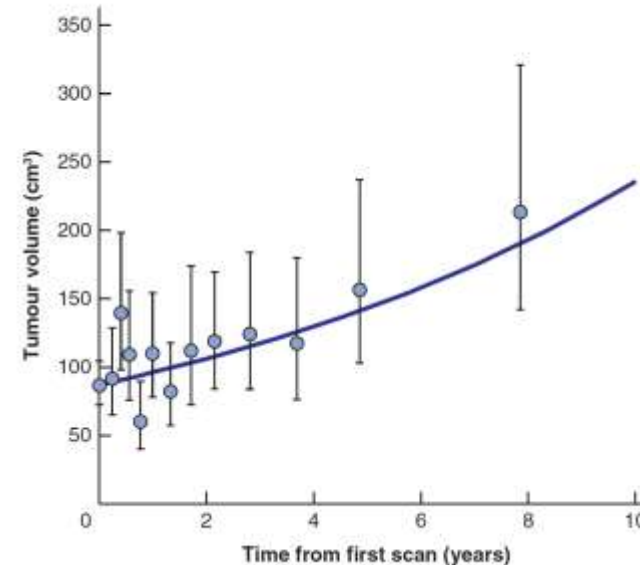
Schwannomas

RP, Abdomen, and Pelvis

a Percentage difference in tumour volume



b Geometric mean tumour volume



- Median growth rate 10.5%/yr
- Surgery: symptomatic and/or growth > 20%/yr
- 5-yr recurrence rate 6.7%



Virtual Biobanking

Survey Study

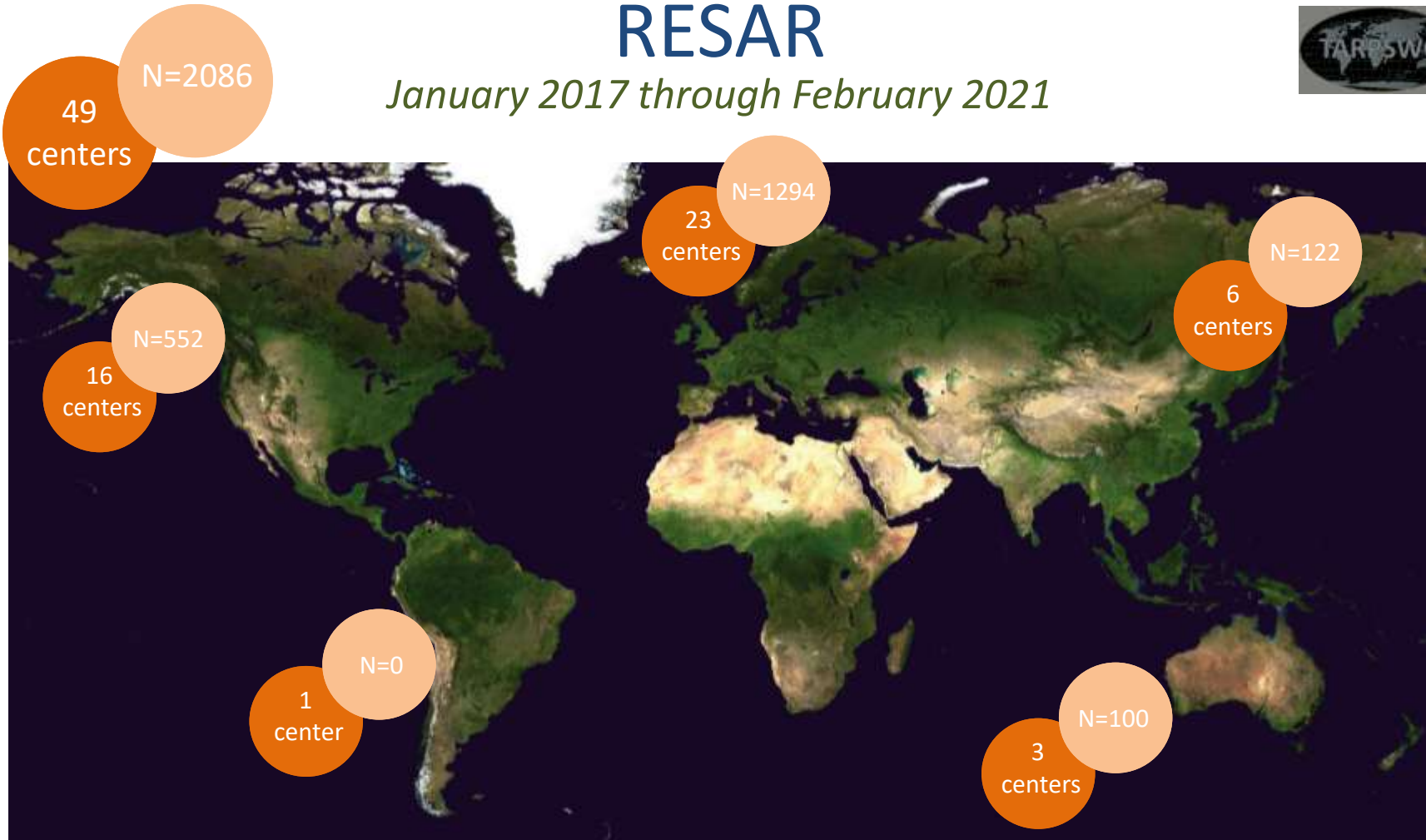
TABLE 2 Biobanking practices and opinions of TARPSWG institutions surveyed

	Number of respondents	%
<i>Centers performing biobanking</i>	42	
<i>Types of specimens banked (multiple answers permitted)</i>	38	
Operative specimens	37	97
Biopsy	18	47
Germline tissue	7	18
<i>Mode of storage (multiple answers permitted)</i>	37	
Fresh frozen	35	95
FFPE	30	81
Cell lines	7	19
Other	2	5
<i>Tissue housed at institution</i>	38	
Yes	37	97
<i>Funding for biobank</i>	34	
Institution	25	73
Grant	4	12
Philanthropy	3	9
Other	2	6
<i>Management of biobank</i>	38	
Centrally (i.e. pathology)	21	55
Clinical faculty	15	39
Centralized by government	2	5
<i>Standard operating procedures in place (multiple answers permitted)</i>	32	
Pathologic review of specimen	25	78
Quality checks of extracted RNA or DNA quality	11	34
Other	5	16
<i>Specimens from patients given neoadjuvant therapy excluded from biobank</i>	37	
Yes	1	3
<i>Willing to share biobanked specimens for TARPSWG research protocols</i>		
Yes	15	39
Possibly, with IRB approval	4	11
Answer dependent on protocol interest	19	50
<i>Barriers to biobanking among centers not biobanking</i>		
Lack of funds	3	33
Limited infrastructure	1	11
Legal and ethical regulations	2	22
Other	3	33
<i>Interest in centralized tumor banking for TARPSWG</i>		
Yes, in addition to own biobank	27	61
Yes, instead of own biobank	1	2
No	10	23
Uncertain	6	14



RESAR

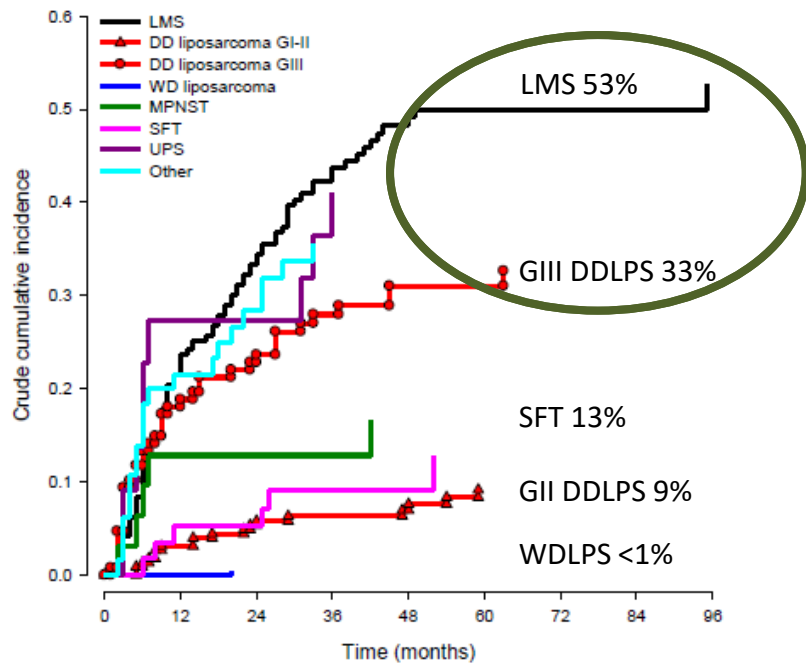
January 2017 through February 2021





STRASS 2

Distant Metastases



G3 LPS



SURGERY ONLY

PREOP ADM/IFO + SURGERY

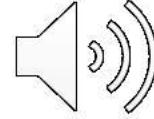
LMS



SURGERY ONLY

PREOP ADM/DTIC + SURGERY

*In the long history of humankind . . . those who
have learned to collaborate . . . most effectively
have prevailed.*



Charles Darwin



*And we can build this dream together
Standing strong forever
Nothing's gonna stop us now.*

Grace Slick and Mickey Taylor (Starship)



Thank you

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