

# Supplementary Information

**Table S1.** Overview of Studies with Mixed Primary Site Gastroenteropancreatic Neuroendocrine Carciomas.

Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD: ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC: LC (n)	N Positive: Syn/CgA/NSE/CD56/p53	OS Months (Range)
Van der Gaast A. [91] (1990, The Netherlands)	NA	2	0	1	2	0	0	0	0	0	1	6 (NA)	NA	2:4	NA	4	NA	6 <sup>h</sup> :0	NA	(10–22)
Moertel C.G. [114] (1991, USA)	1987–1990	6	3	3	0	0	2	0	0	0	3	17 (NA)	NA	NA	NA	17 <sup>h</sup>	NA	NA	NA	NA
Galanis E. [9] (1997, USA)	1974–1994	7	13	0	8	1	0	0	0	0	0	29 (15:14)	NA	12:17	NA	17	NA	29 <sup>h</sup> :0	NA	M <sup>1</sup> : 5 mo
Kimura H. [14] (1999, Toyama, Japan)	1981–1994	0	2	8	4	0	0	0	0	0	0	14 (12:2)	M <sup>2</sup> : 61 (44–75)	NA	NA	13	NA	14 <sup>h</sup> :0	p53: 8/14	M <sup>1</sup> : 8.4
Mitry E. [88] (1999, France)	1988–1997	13	2	3	0	2	0	0	0	0	NA <sup>d</sup>	20 (NA)	NA	3:17	NA	17	NA	NA	NA	NA
Moyana T.N. [44] (2000, Canada)	1964–NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 (NA)	NA	NA	NA	3	NA	NA	NA	NA
Ordóñez N.G. [36] (2000, USA)	NA	1	11	0	1	0	0	0	0	0	0	13 (NA)	NA	NA	NA	NA	NA	13 <sup>h</sup> :0	NA	NA

Table S1. Cont.

Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD: ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC: LC (n)	N Positive: Syn/CgA/ NSE/CD56/ p53	OS Months (Range)
Cheuk W. [35] (2001, Hong Kong, USA)	NA	1	2	4	7	0	1	0	0	0	0	15 (NA)	NA	NA	NA	NA	NA	15 <sup>h</sup> :0	NA	NA
Fjällskog M.L. [83] (2001, Sweden)	NA	4	0	0	0	0	0	0	0	0	0	4 (NA)	NA	NA	NA	4	NA	NA	NA	NA
Dacic S. [41] (2002, USA)	NA	1	2	2	0	0	0	0	0	0	0	5 (3:2)	M <sup>2</sup> : M: 62, W: 60	NA	NA	NA	NA	5 <sup>h</sup> :0	p53: 5/5	NA
Papotti M. [72] (2002, Italy)	NA	2	2	0	0	0	0	1	0	0	0	5 (3:2)	(20–76)	NA	4	1	NA	NA	NA	(6–72) 1: NA
Cimitan M. [80] (2003, Italy)	NA	NA	4	1	NA	NA	NA	NA	NA	4	0	9 (6:3)	(45–73)	NA	NA	7	NA	9 <sup>h</sup> :0	NA	NA
Fjällskog M.L. [69] (2003, Sweden)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 (2:3)	(25–64)	NA	NA	5	NA	NA	NA	NA
Pizzi S. [38] (2003, Italy)	NA	0	9	15	0	0	0	0	0	0	0	24 (19:5)	(40–91)	NA	16 (4 NA)	2	(5–80)	NA	p53: 14/24	NA
Brenner B. [7] (2004, USA)	1980–2002	6	25	5	19	5	2	0	0	0	2	64 (31:33)	M <sup>1</sup> : 61 (37–86)	33:30	34	35	NA	64 <sup>h</sup> :0	NA	M <sup>1</sup> : 11 (1–107)
Furlan D. [39] (2004, Italy)	NA	1	7	6	0	0	0		0	0	0	14 (11:3)	(37–77)	NA	16 (2 NA)	4 (2 NA)	(25–70)	NA	NA	(1–72)

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Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD: ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC: LC (n)	N Positive: Syn/CgA/ NSE/CD56/ p53	OS Months (Range)
La Rosa S. [58] (2004, Italy)	NA	2	10	7	8	0	0	0	0	0	0	27 (22:5)	M <sup>2</sup> : 56–70 <sup>i</sup>	NA	NA	26	NA	NA	NA	NA
Pape U.F. [18] (2004, Germany)	1980–2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15 (NA)	NA	NA	NA	NA	NA	NA	NA	M <sup>2</sup> : 15 (95% CI: 7–22)
Artale S. [107] (2005, Italy)	2000–2003	5	0	0	0	0	0	0	0	0	3	8 (4:4)	M <sup>1</sup> : 54 (40–77)	NA	NA	8 <sup>h</sup>	M <sup>2</sup> : 30 (7–90)	NA	NA	2-year survival: 66%
Furlan D. [43] (2005, Italy)	NA	1	10	7	2	1	0	0	0	0	0	21 (15:6)	NA	NA	16	7	(26–70)	1:6 (14 mixed )	p53: 11/14	NA
Grabowski P. [45] (2005, Germany)	1981–2001	0	8	2	0	0	0	0	0	0	0	10 (9:1)	M <sup>1</sup> : 56 (29–81)	NA	NA	10	(15–NA)	NA	NA	M <sup>1</sup> : 13
Pizzi S. [55] (2005, Italy)	NA	0	3	8	0	0	0	0	0	0	0	11 (9:2)	(44–87)	NA	8	3	NA	NA	NA	NA
Shida T. [50] (2005, Japan)	1999–2004	0	6	3	1	0	0	0	0	0	0	10 (5:5)	(45–83)	NA	NA	5	NA	6:4	Syn: 7/10, CgA: 4/10	(1–24)
Haider K. [12] (2006, Canada)	1971–2002	7	8	3	2	0	0	0	0	0	0	20 (13:7)	NA	7:13	NA	NA	NA	20 <sup>h</sup> :0	NA	M <sup>1</sup> : 4.4 (0.1–23.5)

Table S1. Cont.

Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD: ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC: LC (n)	N Positive: Syn/CgA/ NSE/CD56/ p53	OS Months (Range)
Hainsworth J.D. [84] (2006, USA)	1999–2005	3	9	1	1	1	0	0	0	0	NA <sup>d</sup>	15 (NA)	NA	NA	NA	15	NA	NA	NA	NA
Ishikubo T. [54] (2006, Japan)	NA	0	4	16	1	0	2	0	0	0	0	23 (19:4)	Average: 60	NA	NA	NA	NA	NA	NA	NA
Kim K.O. [13] (2006, Korea)	1998–2005	5	1	5	6	0	0	0	1	0	0	18 (NA)	NA	11:7	NA	NA	NA	18 <sup>h</sup> :0	NA	M <sup>1</sup> : 8 (95% CI: 6.2–10)
Li A.F.Y. [42] (2006, Taiwan)	1985–2004	0	6	9	6	0	1	0	0	0	0	22 (18:4)	M <sup>2</sup> : 66.1 ± 16.9 (32–88)	NA	18	7	NA	NA	p53: 16/22	M <sup>2</sup> : 20.3 ± 23.1 (1–91)
Uccella S. [37] (2006, Italy)	1982–2004	0	11	11	6	0	0	0	0	0	0	28 (22:6)	(41–85)	NA	NA	(28 “malignant”)	NA	NA	NA	NA
Bajetta E. [120] (2007, Italy)	2000–2005	4	NA	0	NA	NA	1	NA	NA	NA	0	5 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Cho C.S. [283] (2007, USA)	1990–2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3–7 (NA)	NA	NA	NA	3–7 <sup>h</sup>	NA	NA	NA	M <sup>1</sup> : 6
Cicin I. [75] (2007, Turkey)	1999–2006	2	1	0	0	2	0	0	0	0	0	5 (3:2)	(40–73)	2:3	NA	3	NA	5 <sup>h</sup> :0	NA	(2–68)
Correale P. [59] (2007, Italy) <sup>a</sup>	1999–2003	2	NA	NA	NA	NA	NA	NA	NA	8	NA <sup>d</sup>	10 (NA)	NA	NA	NA	10	NA	NA	NA	NA



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Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD: ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC: LC (n)	N Positive: Syn/CgA/ NSE/CD56/ p53	OS Months (Range)
Ceppi P. [47] (2008, Italy)	1992–2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8 (4:4)	M <sup>2</sup> : 45 (30–85)	NA	NA	NA	NA	NA	NA	NA
Grabowski P. [46] (2008, Germany)	1981–2001	0	8	2	0	0	0	0	0	0	0	10 (9:1)	M <sup>1</sup> : 56 (29–81)	NA	NA	10	NA	NA	NA	M <sup>1</sup> : 8 (1–15)
Le Treut Y.P. [130] (2008, France)	1989–2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0–11 (NA)	NA	NA	NA	0–11 <sup>h</sup>	NA	NA	NA	M <sup>1</sup> : 10
Shia, J. [29] (2008, USA)	NA	0	40	18	6	0	0	1	0	0	0	65 (36:29)	M <sup>1</sup> : 64 (30–91)	NA	NA	22 (7 NA)	NA	23:33 (+ 11 mixed )	Syn: 57/65, CgA: 42/65, CD56: 47/65	M <sup>2</sup> : 15.7 (95% CI: 11.3–19.7)
Yao J.C. [19] (2008, USA)	1973–2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4054 (NA)	NA	NA	NA	50%	NA	NA	NA	M <sup>1</sup> : 10 (95% CI: 9–11)
Frilling A. [128] (2009, Germany)	1992–2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58–82 (NA)	NA	NA	NA	58–82 <sup>h</sup>	NA	NA	NA	NA

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Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD: ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC: LC (n)	N Positive: Syn/CgA/ NSE/CD56/p53	OS Months (Range)
Lepage C. [79] (2009, EUROCARE database)	1985–1994	109	114	123	419	48 <sup>j</sup>	7	0	0	0	0	820 (NA)	NA	NA	NA	NA	NA	820 <sup>h</sup> : 0	NA	5-year survival relative survival: 8.1 (7.4–11.3)
Lombard-Bohas C. [71] (2009, France)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Shida T. [51] (2009, Japan)	1999–2007	2	6	3	1	1	1	0	0	0	0	14 (6:8)	(19–83)	NA	NA	10	(18–82)	8:6	Syn: 10/14, CgA: 7/14	(1–48)
Shida T. [56] (2009, Japan)	1999–2007	3	6	0	0	0	0	0	0	0	0	9 (4:5)	(19–84)	NA	NA	5	NA	3:6	NA	(2–65)
Srirajaskanthan R. [105] (2009, UK)	NA	3	1	1	0	0	1	0	0	0	NA <sup>d</sup>	6 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Wong Y.N. [65] (2009, England)	1970–2004	55	60	92	293	15	NA	NA	NA	17	NA	532 (231:301)	NA	181: 159 (192 NA)	NA	159 (192 NA)	NA	532 <sup>h</sup> : 0	NA	3-year survival: 7%

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Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD:ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC:LC (n)	N Positive: Syn/CgA/NSE/CD56/p53	OS Months (Range)
Binderup T. [111] (2010, Denmark)	2007–2008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14 <sup>c*</sup> (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Brennan S.M. [6] (2010, Australia)	1985–2007	NA	NA	NA	20	NA	NA	NA	NA	8	NA	28 (NA)	NA	16:12	NA	NA	NA	28 <sup>h:0</sup>	NA	M <sup>1</sup> : 8.4
Catena L. [57] (2010, Italy)	1984–2009	12	6	0	0	0	4	0	0	0	NA <sup>d</sup>	30 (NA)	M <sup>1</sup> : 59 (17–75)	NA	NA	30	NA	NA	NA	NA
Garcia-Carbonero R. [10] (2010, Spain)	2001–2008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	54 (34:20)	NA	NA	NA	32	NA	NA	NA	M <sup>1</sup> : 14.4
Gregory D.L. [77] (2010, Australia)	1996–2007	0	1	1	5	0	0	0	0	0	0	7 (NA)	NA	6:1	NA	1	NA	7 <sup>h:0</sup>	NA	NA
Li A.F.Y. [16] (2010, Taiwan)	1989–2008	0	13	8	17	0	1	0	0	0	NA <sup>d</sup>	39 (35:5)	M <sup>2</sup> : 61.8–84 <sup>i</sup>	14:23 (2 NA)	NA	23	NA	39 <sup>h:0</sup>	NA	M <sup>1</sup> : 6–15 (±4.46–49.97) <sup>i</sup>
Li A.F.Y. [34] (2010, Taiwan)	1989–2009	0	15	15	11	1	0	0	0	0	0	42 (37:5)	M <sup>1</sup> : 64 (32–84)	15:27	NA	27	NA	42 <sup>h:0</sup>	Syn: 42/42, CgA: 26/42, NSE: 42/42, CD56: 38/42	M <sup>1</sup> : 16 ± 21 mo



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Author (Year, Country)	Time Period	P	CR	S	O	GB	SI	A	L	Other	UK	GEP-NECs (M:W)	Age (range)	LD: ED <sup>g</sup> (n)	Lymph Met. (n)	Distant Met. (n)	Ki-67% (Range)	SC: LC (n)	N Positive: Syn/CgA/ NSE/CD56/ p53	OS Months (Range)
Niederle M.B. [66] (2010, Austria) <sup>a</sup>	2004–2005	5	8	2	0	0	2	1	1	0	0	19 (NA)	M <sup>1</sup> : 73	NA	NA	NA	NA	NA	NA	NA
O'Toole D. [40] (2010, Ireland)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13 (NA)	NA	NA	NA	NA	NA	NA	NA	M <sup>1</sup> : 13 (0–112)
Saxena A. [129] (2010, Australia) <sup>a</sup>	2003–2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	(5–8) (NA)	NA	NA	NA	5–8 <sup>h</sup>	NA	NA	NA	NA
Turner N.C. [119] (2010, UK) <sup>a</sup>	1999–2008	5	0	0	0	0	0	0	0	NA	0	5 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Deutschbein T. [116] (2011, Germany)	2005–2009	2	2	4	1	0	0	0	0	0	3	12 (7:5)	(39–75)	NA	7	11	(25–85)	NA	NA	NA
Ezziddin S. [109] (2011, Germany)	NA	3	NA	NA	NA	NA	NA	NA	NA	4	0	7 (4:3)	NA	NA	NA	7	NA	NA	NA	NA
Grossman R.A. [11] (2011, USA)	1973–2006	NA	342	147	274	NA	13	NA	NA	456	0	1232 (NA)	NA	NA	NA	722	NA	1232 <sup>h</sup> :0	NA	M <sup>1</sup> : 4
Hentic O. [100] (2011, France)	1997–2006	8	0	1	0	0	1	0	0	0	8	18 (7:11)	M <sup>1</sup> : 58 (33–71)	NA	NA	18 <sup>h</sup>	(25–90)	NA	NA	M <sup>1</sup> : 14

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Jin S. [86] (2011, China)	2004–2008	1	2	2	4	0	0	0	0	0	0	9 (NA)	NA	NA	NA	9	NA	9 <sup>h</sup> :0	NA	NA
Oh S. [110] (2011, Korea)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 (NA)	NA	NA	NA	6	NA	NA	NA	NA
Sclafani F. [74] (2011, Italy)	1997–2007	2	2	1	0	0	1	0	0	0	0	6 (3:3)	(34–78)	NA	NA	NA	NA	NA	NA	NA
Welin S. [108] (2011, Sweden, Norway)	2004–2009	10	5	2	0	0	0	0	0	0	NA <sup>d</sup>	17 (NA)	NA	NA	NA	17	NA	NA	NA	NA
Cho M.Y. [2] (2012, Korea)	2000–2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	72 (NA)	NA	NA	NA	NA	NA	NA	NA	5-year survival: 42.96%
Faggiano A. [68] (2012, Italy)	1990–2007	19	7	7	0	0	2	0	0	0	NA <sup>d</sup>	35 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Hentic O. [85] (2012, France)	2000–2010	10	2	0	0	0	0	0	6	1	0	19 (7:12)	NA	NA	NA	18	M <sup>1</sup> : 50 (21–100)	11:6 (2NA)	CgA: 14/17	M <sup>1</sup> : 14 (1.6–30)
Knösel T. [53] (2012, Germany)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29 (NA)	NA	NA	NA	NA	NA	NA	NA	5-year survival: 31% ± 9%

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Korse C.M. [95] (2012, The Netherlands)	1994–2009	9	5	0	0	0	0	0	0	0	NA <sup>d</sup>	14 (NA)	NA	NA	NA	NA	NA	2:12	NA	NA
Nakano K. [118] (2012, Japan)	2005–2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA <sup>d</sup>	9 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Olsen I.H. [117] (2012, Denmark)	2007–2009	4	6	0	3	0	2	0	0	0	NA <sup>d</sup>	15 (NA)	NA	NA	NA	15	(20–100)	NA	NA	NA
Olsen I.H. [122] (2012, Denmark)	NA	7	5	3	3	0	0	0	0	0	NA <sup>d</sup>	18 (NA)	NA	NA	NA	18	(20–NA)	NA	NA	NA
Quinn A.M. [78] (2012, Manchester, UK)	1994–2003	0	1	2	3	0	0	0	0	0	0	6 (NA)	NA	NA	NA	NA	NA	5 <sup>h</sup> :0, 1 NA	Syn: 5/6	NA
Terashima T. [115] (2012, Japan)	2000–2008	9	0	10	8	4	0	0	3	0	NA <sup>d</sup>	34 (23:11)	M <sup>1</sup> : 46.5–63.5 (27–79) <sup>i</sup>	0:34 <sup>h</sup>	18	34 <sup>h</sup> (ED)	NA	34 <sup>h</sup> :0	NA	M <sup>1</sup> : 7.8–14.9 (±1.49–14.9) <sup>i</sup>





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Olsen I.H. [124] (2014, Denmark)	NA	2	1	0	8	0	2	0	0	0	NA <sup>d</sup>	13 (NA)	NA	NA	NA	13	NA	NA	NA	NA
Yamaguchi T. [92] (2014, Japan)	2000–2011	35	31	70	85	31 <sup>k</sup>	6	0	NA	0	0	258 <sup>f</sup> (182:76)	M <sup>1</sup> : 62.5 (26–81)	NA	131	219	(43 >55%, 27:20–54%) (188 NA)	122: NA	Syn: 204/258, CgA: 172/258	M <sup>1</sup> : 11.5
TOTAL <sup>c</sup>	-	744/4904	1122/4904	702/4904	1368/4904	66/4904	154/4904	4/4904	41/4904	601/4904	102/4904	7988 (989:890 /1879)	-	-	-	-	-	-	-	-

<sup>a</sup> Prospective study, all other studies are retrospective or not stated; <sup>b</sup> Might not be exact numbers: extrapolated from incidence rates; <sup>c</sup> Total after removal of possible overlapping cohorts (*i.e.*, if cohorts are from the same hospital and if it is not clearly stated in the article that patients have not been used in previous studies); <sup>d</sup> Can have a number of unknown NECs in a mixed location cohort but without specification of gastroenteropancreatic metastases; <sup>e</sup> Only information for 16 patients; <sup>f</sup> 21 MANECs included; <sup>g</sup> LD (Limited Disease): confined to a localized anatomic region/organ of origin with locoregional lymph node involvement, (encompassable within one (tolerable) radiation therapy treatment port/radiation field), ED (Extensive Disease): beyond LD; <sup>h</sup> Part of inclusion criteria; <sup>i</sup> Variation due to no group value, range of values from different primary sites; <sup>j</sup> includes liver and gallbladder (distribution NA); <sup>k</sup> hepatobiliary system (distribution NA); GEP-NEC: Gastroenteropancreatic neuroendocrine carcinoma (includes WHO 2010 definition, WHO 2000/2004 definition; poorly differentiated endocrine carcinomas (PDEC), small cell carcinomas, large cell carcinomas and anaplastic/high grade carcinomas); Other NEC: neuroendocrine carcinoma/poorly differentiated carcinoma/small cell carcinoma of sites other than the gastroenteropancreatic system; NET: neuroendocrine tumour/well differentiated endocrine tumour/well differentiated carcinoma/low grade tumour; NA: Not Available (if the study has a larger cohort with locations other than the GEP-system, with values for the whole group but none specific for GEP-NECs, these values are marked as NA); P: N Pancreas, CR: N Colorectum, S: N Stomach, O: N Oesophagus, GB: N Gallbladder, SI: N Small Intestine, A: N Appendix, L: N Liver, UK: N Unknown; M: N Men, W: N Women; M<sup>1</sup>: Median, M<sup>2</sup>: Mean; LC: Large Cell, SC: Small Cell; Syn: Synaptophysin, CgA: Chromogranin A, NSE: Neuron Specific Enolase; OS: Overall Survival; Met.: Metastases.

**Table S2.** Overview of Immunohistochemistry and Molecular Markers.

Author (Year, Country)	Time Period	n GEP- NEC (°)	Ki-67% (Range)	n SC: n LC	IHC: n syn Positive	IHC: n CgA Positive	IHC: n NSE Positive	IHC: n CD56 Positive	IHC: n p53 Positive	IHC: n p16 Positive	IHC: n TTF-1 Positive	IHC: n TS Positive	IHC: n mTOR Positive	Other n IHC Positive	MA: n LOH or AI p53	MA: n LOH or AI p3	MA: n LOH or AI MEN-1	MA: n LOH or AI other	Other
Moertel C.G. [114] (1991, USA)	1987– 1990	17 (18 <sup>b</sup> )	NA	NA:NA	2/4 <sup>b</sup> (50%)	2/4 <sup>b</sup> (50%)	2/4 <sup>b</sup> (50%)	-	-	-	-	-	-	-	-	-	-	-	-
Kimura H. [14] (1999, Japan)	1981– 1994	14	PCNA: 72 ± 11.6 (53–91)	14 <sup>d</sup> :0	-	-	-	-	8/14 (57%)	-	-	-	-	-	-	-	-	-	-
Moyana T.N. [44] (2000, Canada)	1964– NA	5 (58 <sup>°</sup> )	“extensive areas of positivity”	NA:NA	-	-	-	-	7/58 <sup>c</sup> (12%)	-	-	-	-	-	-	-	-	-	-
Ordóñez N.G. [36] (2000, USA)	NA	13	NA	13 <sup>d</sup> :0	-	-	-	-	-	-	3/13 (23%)	-	-	CK-20: 0/13 (0%)	-	-	-	-	-
Cheuk W. [35] (2001, Hong Kong, USA)	NA	15	NA	15 <sup>d</sup> :0	-	-	-	-	-	-	8/15 (53%)	-	-	CK-20: 0/15 (0%)	-	-	-	-	-

Table S2. Cont.

Author (Year, Country)	Time Period	n GEP- NEC (%)	Ki-67% (Range)	n SC: n LC	IHC: n syn Positive	IHC: n CgA Positive	IHC: n NSE Positive	IHC: n CD56 Positive	IHC: n p53 Positive	IHC: n p16 Positive	IHC: n TTF-1 Positive	IHC: n TS Positive	IHC: n mTOR Positive	Other n IHC Positive	MA: n LOH or AI p53	MA: n LOH or AI p3	MA: n LOH or AI MEN-1	MA: n LOH or AI other	Other
Dacic S. [41] (2002, USA)	NA	5	NA	5:0	-	-	-	-	-	-	-	-	-	-	4/4 (100%)	-	-	P16: 4/7 <sup>i</sup> (57%), L-myc: 5/5, PTEN: 4/4	-
Pizzi S. [38] (2003, Italy)	NA	24	(5–80)	NA:NA	-	-	-	-	14/24 (58%)	14/24 (58%)	-	-	-	Loss of Rb: 13/24 (54%)	18/22 (82%)	13/23 (57%)	11/23 (48%)	11q: 9/14, 18q: 11/23	-
Brenner B. [7] (2004, USA)	1980– 2002	64	NA	64 <sup>d</sup> :0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Furlan D. [39] (2004, Italy)	NA	14	(25–70)	NA:NA	-	-	-	-	-	-	-	-	-	-	12/13 (92%)	5/13 (38%)	5/10 (50%)	-	-
La Rosa S. [58] (2004, Italy)	NA	27	NA	NA:NA	-	-	-	-	-	-	-	-	-	Nuclear CDX2: 3/27 (11%)	-	-	-	-	-



Table S2. Cont.

Author (Year, Country)	Time Period	n GEP- NEC (#)	Ki-67% (Range)	n SC: n LC	IHC: n syn Positive	IHC: n CgA Positive	IHC: n NSE Positive	IHC: n CD56 Positive	IHC: n p53 Positive	IHC: n p16 Positive	IHC: n TTF-1 Positive	IHC: n TS Positive	IHC: n mTOR Positive	Other n IHC Positive	MA: n LOH or AI p53	MA: n LOH or AI p3	MA: n LOH or AI MEN-1	MA: n LOH or AI other	Other
Furlan D. [43] (2005, Italy)	NA	21 (36 <sup>b</sup> )	(26–70)	1:6 (14 mixed)	-	-	-	-	11/14 (79%)	-	-	-	-	-	19/20 (95%)	9/18 (50%)	-	-	-
Grabowski P. [45] (2005, Germany)	1981– 2001	10	(>15–NA)	NA:NA	-	-	-	-	-	-	-	-	-	Survivin1: 10/10 (100%)	-	-	-	-	-
Pizzi S. [55] (2005, Italy)	NA	11	NA	NA:NA	-	-	-	-	-	-	-	-	-	Hyper- expression CyD1: 2/11 (18%)	-	4/9 (44%)	-	-	RASSF1 A methylat ion: 2/11 (18%)
Shida T. [50] (2005, Japan)	1999– 2004	10	NA	6:4	7/10 (70%)	4/10 (40%)	-	-	-	-	-	-	-	-	-	-	-	-	mRNA: 8/10 intense hASH1, 1/10 mild hASH1
Ishikubo T. [54] (2006, Japan)	NA	23	NA	NA:NA	-	-	-	-	-	-	-	-	-	c-kit: 6/23 (26%)	-	-	-	-	-

Table S2. Cont.

Author (Year, Country)	Time Period	n GEP- NEC (#)	Ki-67% (Range)	n SC: n LC	IHC: n syn Positive	IHC: n CgA Positive	IHC: n NSE Positive	IHC: n CD56 Positive	IHC: n p53 Positive	IHC: n p16 Positive	IHC: n TTF-1 Positive	IHC: n TS Positive	IHC: n mTOR Positive	Other n IHC Positive	MA: n LOH or AI p53	MA: n LOH or AI p3	MA: n LOH or AI MEN-1	MA: n LOH or AI other	Other
Li A.F.Y. [42] (2006, Taiwan)	1985– 2004	22	NA	NA:NA	-	-	-	-	16/22 (73%)	17/22 (77%)	-	-	-	c-kit: 0/22 (0%)	-	-	-	-	-
Uccella S. [37] (2006, Italy)	1982– 2004	28	NA	NA:NA	-	-	-	-	-	-	-	-	-	VMAT2: 17/28 (61%) HDC: 13/22 (59%)	-	-	-	-	-
Lee H. [70] (2007, Korea)	1996– 2005	12	Mean large cell: 59.6, mean small cell: 56	6:6	8/9 (89%)	3/9 (33%)	-	-	5/9 (56%)	-	0/9 (0%)	-	-	Gastrin: 0/9 (0%) SS: 0/9 (0%)	-	-	-	-	-
Ceppi P. [47] (2008, Italy)	1992– 2006	8	NA	NA:NA	-	-	-	-	-	-	-	6/8 (75%)	-	-	-	-	-	-	TS mRNA: median 18.7 (3– 49.5)
Grabowski P. [46] (2008, Germany)	1981– 2001	10	NA	NA:NA	-	-	-	-	-	-	-	-	-	High cyclin E: 7/19 (37%) High p53 p27: 0/27 (0%)	-	-	-	-	PCR: 1/10 (10%) p53 mutation

Table S2. Cont.

Author (Year, Country)	Time Period	n GEP- NEC (%)	Ki-67% (Range)	n SC: n LC	IHC: n syn Positive	IHC: n CgA Positive	IHC: n NSE Positive	IHC: n CD56 Positive	IHC: n p53 Positive	IHC: n p16 Positive	IHC: n TTF-1 Positive	IHC: n TS Positive	IHC: n mTOR Positive	Other n IHC Positive	MA: n LOH or AI p53	MA: n LOH or AI p3	MA: n LOH or AI MEN-1	MA: n LOH or AI other	Other
Shia, J. [29] (2008, USA)	NA	65	NA	23:31 (+11 mixed)	56/65 (87%)	42/65 (65%)	-	47/65 (72%)	-	-	-	-	-	-	-	-	-	-	-
Shida T. [51] (2009, Japan)	1999– 2007	14	(18–82)	8:6	10/14 (71%)	7/14 (50%)	-	-	-	-	-	-	-	Mash1: 0/14 (0%), Neuro D: 11/14 (79%)	-	-	-	-	-
Shida T. [56] (2009, Japan)	1999– 2007	9	NA	3:6	-	-	-	-	-	-	-	-	6/9 (67%)	-	-	-	-	-	-
Catena L. [57] (2010, Italy)	1984– 2009	30	NA	NA:NA	-	-	-	-	-	-	-	-	80%	-	-	-	-	-	-
Li A.F.Y. [16] (2010, Taiwan)	1989– 2009	42	NA	42 <sup>d</sup> :0	42/42 (100%)	9/41 (22%)	42/42 (100%)	26/42 (62%)	-	-	9/41 (22%)	-	-	CK8: 39/42 (93%), AE1/AE3: 32/42 (76%), EMA: 30/42 (71%)	-	-	-	-	-



Table S2. Cont.

Author (Year, Country)	Time Period	n GEP- NEC (%)	Ki-67% (Range)	n SC: n LC	IHC: n syn Positive	IHC: n CgA Positive	IHC: n NSE Positive	IHC: n CD56 Positive	IHC: n p53 Positive	IHC: n p16 Positive	IHC: n TTF-1 Positive	IHC: n TS Positive	IHC: n mTOR Positive	Other n IHC Positive	MA: n LOH or AI p53	MA: n LOH or AI p3	MA: n LOH or AI MEN-1	MA: n LOH or AI other	Other
Quinn A.M. [78] (2012, UK)	1994– 2003	6	NA	5:0 (1 NA)	5/6 (83%)	-	-	-	-	-	3/6 (50%)	-	-	34βE12: 0/7 (0%)	-	-	-	-	-
Delektorsk aya V.V. [67] (2013, Russia)	1994– 2011	23	(23–80)	4:4 (15 NA)	-	-	-	-	12/23 (52%)	-	1/4 (25%)	-	-	CDX-2: 5/8 (63%)	-	-	-	-	-
Lee H.S. [48] (2013, Korea)	NA	32	NA	NA:NA	-	-	-	-	-	-	-	30/32 (94%)	-	E2F1: 22/32 (69%), Rb: 17/32 (53%), p18: 6/32 (19%), p21: 24/32 (75%), p27: 14/32 (44%), menin: 29/32 (91%)	-	-	-	-	-



Table S2. Cont.

Author (Year, Country)	Time Period	n GEP- NEC (°)	Ki-67% (Range)	n SC: n LC	IHC: n syn Positive	IHC: n CgA Positive	IHC: n NSE Positive	IHC: n CD56 Positive	IHC: n p53 Positive	IHC: n p16 Positive	IHC: n TTF-1 Positive	IHC: n TS Positive	IHC: n mTOR Positive	Other n IHC Positive	MA: n LOH or AI p53	MA: n LOH or AI p3	MA: n LOH or AI MEN-1	MA: n LOH or AI other	Other
Yamaguchi T. [92] (2014, Japan)	2000– 2011	258 <sup>f</sup>	(>20–NA) <sup>g</sup>	122:NA	204/258 (79%)	172/258 (67%)	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	672/762 (88%) <sup>b,h</sup>	576/768 (75%) <sup>b,h</sup>	77/120 (64%) <sup>b,h</sup>	85/119 (71%)	73/164 (45%) <sup>c,h</sup>	31/46 (67%)	32/124 (26%) <sup>b</sup>	36/40 (90%)	6/9 (67%) <sup>+</sup>	-	41/46 (89%) <sup>h</sup>	22/41 (54%) <sup>h</sup>	16/33 (48%)	-	-
					647/730 (89%) <sup>h</sup>	551/736 (75%) <sup>h</sup>	45/46 <sup>h</sup> (98%)		66/106 <sup>h</sup> (62%)		24/116 (21%)								

GEP-NEC: Gastroenteropancreatic neuroendocrine carcinoma (includes WHO 2010 definition, WHO 2000/2004 definition; poorly differentiated endocrine carcinomas (PDEC), small cell carcinomas, large cell carcinomas and anaplastic/high grade carcinomas); Other NEC: neuroendocrine carcinoma/poorly differentiated carcinoma/small cell carcinoma of sites other than the gastroenteropancreatic system; NET: neuroendocrine tumour/well differentiated endocrine tumour/well differentiated carcinoma/low grade tumour; NA: Not Available; SC: Small Cell; LC: Large Cell; PCNA: proliferating cell nuclear antigen; IHC: Immunohistochemistry; Syn: synatophysin; CgA: Chromogranin A; NSE: neuron specific enolase; TTF-1: Thyroid transcription factor 1; TS: Thymidylate synthase; SS: Somatostatin; MA: Microsatellite analysis; LOH: Loss of heterozygosity; AI: Allelelic Imbalance; <sup>a</sup> includes GEP-NEC + other NEC (<sup>b</sup>) and/or NET (<sup>c</sup>) if no specific value for GEP-NECs is available; <sup>b</sup> value includes GEP-NEC and other NEC of original cohort; <sup>c</sup> value includes GEP-NECs and NETs of original cohort; <sup>d</sup> part of inclusion criteria; <sup>e</sup> only information for 16/18; <sup>f</sup> 21 MANEC included; <sup>g</sup> 73% do not have a Ki-67 index; <sup>h</sup> possible duplicates removed; <sup>i</sup> 2 tests for p16.

**Table S3.** Overview of Imaging.

Author (Year, Country)	Time Period	Sample Size (GEP-NEC <sup>e</sup> )	Lymph. Met: Distant Met	SRS (%)	FDG-PET (%)
Cimitan M. [80] (2003, Italy)	NA	9	NA:7	4+/9 (44)	NA
Fjällskog M.L. [69] (2003, Sweden)	NA	5	NA:5	3+/5 (60)	NA
Artale S. [107] (2005, Italy) <sup>a</sup>	2000–2003	8	NA:8	5+/8 (63)	NA
Srirajaskanthan R. [105] (2009, UK)	NA	6	NA:NA	2+/3 (67)	NA
Binderup T. [111] (2010, Denmark)	2007–2008	14 <sup>b</sup>	NA:NA	NA	13+/14 (93)
Gregory D.L. [77] (2010, Australia)	1996–2007	7	NA: 1	NA	7/7 (100)
Oh S. [110] (2011, Korea)	NA	6	NA:6	NA	36/39 lesions (90)
Sclafani F. [74] (2011, Italy)	1997–2007	6	NA:NA	4+/6 (67)	NA
Hentic O. [85] (2012, France)	2000–2010	19	NA:18	2+/10, 9 NA	NA
Feng S.T. [82] (2013, China)	2009–2013	31	28:13	NA	NA
Lu Z.H. [87] (2013, China)	2009–2011	18 <sup>c</sup>	NA:15	7+/16 (44)	NA
Sorbye H. [4] (2013, 12 Nordic hospitals)	2000–2009	305	188:301	68+/182 (37)	NA
TOTAL				<b>92/234 (39) <sup>d</sup></b>	

<sup>a</sup> Prospective study, all others are retrospective or not stated; <sup>b</sup> Ki-67 >15%; <sup>c</sup> information for only 16; <sup>d</sup> removal of possible overlapping cohorts; <sup>e</sup> includes poorly differentiated endocrine carcinomas, small cell carcinomas, high grade NENs of the gastroenteropancreatic system; GEP-NEC: Gastroenteropancreatic neuroendocrine carcinoma (includes WHO 2010 definition, WHO 2000/2004 definition; poorly differentiated endocrine carcinomas (PDEC), small cell carcinomas, large cell carcinomas and anaplastic/high grade carcinomas); NA: Not Available; Met: Metastases.



**Table S4.** Overview of Studies including Chemotherapy in GEP-NECs.

Study Author (Year, Country)	Time Period	Original Cohort <i>n</i> (GEP-NEC <i>n</i> / Other NEC <i>n</i> / NET <i>n</i> )	Median Age GEP-NEC (Range) (* (Range))	PS Used	PS ( <i>n</i> ) GEP- NEC (*)	Lymph Met ( <i>n</i> ): Distant Met ( <i>n</i> ) (*)	Primary Treatment ( <i>n</i> ) (*)	1st-Line Chemotherapy † (*)	2nd-Line Chemotherapy † (*)	Grade 3/4 Side Effects (*)	Effect of Primary Treatment (*)	Median PFS Mo (Range) (*) (Range)	MOS Mo (Range) (*) (Range)
Van der Gaast A. [91] (1990, The Netherlands)	NA	11 (6/5/0)	NA (55 (26–72) <sup>b</sup> )	WHO	NA (0:2, 1:3, 2:6 <sup>b</sup> )	NA: 4	4:C, 2: C+R	<b>5:CDE, 1: EP</b>	NA	NA	CR: 3, PR: 2, SD: 1	(7–11)	(10–22)
Moertel C.G. [114] (1991, USA)	1987– 1990	45 (17/1/27)	NA (52 (24–74) <sup>b</sup> )	ECOG	NA (0:5, 1:7, 2:5, 3:1 <sup>b</sup> )	NA: NA	17:C	<b>17: EP</b>	NA	NA (22%: nausea/vomiting, 35%: leucopenia, 15%: thrombopenia, 22%: anemia, 100%: alopecia, 13%: other <sup>b,c</sup> )	NA (CR:3, PR:9, SD:6 <sup>b</sup> )	NA (11 (2–21) <sup>b</sup> )	NA (19 (5–36+ mo) <sup>b</sup> )
Mitry E. [88] (1999, France)	1988– 1997	53 (20/21/12)	NA (53.4 (20–76) <sup>b</sup> )	NA	NA	NA: NA (LD:ED: 8:33 <sup>b</sup> )	20:C (58% <sup>b</sup> :prior therapy: 13:S, 13:other C, 3:SSA)	<b>20: EP</b>	NA	NA (50/53 <sup>b,c</sup> : 20: nausea/vomiting, 21: leukopenia, 30: neutropenia, 6: thrombocytopenia, 6: anaemia)	NA (CR:4, PR:13, SD:14, PD:10 <sup>b</sup> )	NA (8.9 (6.7–13.4) <sup>b</sup> )	NA (15 mo (11.7–25 mo) <sup>b</sup> )

Table S4. Cont.

Study	Original Cohort <i>n</i>	Median Age	PS Used	PS ( <i>n</i> )	Lymph Met ( <i>n</i> ): Distant Met ( <i>n</i> ) <sup>(a)</sup>	Primary Treatment ( <i>n</i> ) <sup>(a)</sup>	1st-Line Chemotherapy <sup>f</sup> ( <i>n</i> )	2nd-Line Chemotherapy <sup>f</sup> ( <i>n</i> )	Grade 3/4 Side Effects ( <i>n</i> )	Effect of Primary Treatment ( <i>n</i> )	Median PFS Mo (Range) <sup>(a)</sup> (Range)	MOS Mo (Range) <sup>(a)</sup> (Range)
Fjällskog M.L. [83] (2001, Sweden)	36 (4/0/32)	NA (47.5 (15–70) <sup>(a)</sup> )	NA	NA	NA: 4	4:C (83% <sup>(c)</sup> prior therapy: 10:S, 8:R, 17: other C, 4: other)	NA (15: streptozotocin + 5-FU, 21: EP <sup>(c)</sup> )	NA (47%: EP <sup>(c)</sup> )	NA (23 neutropenia, 36 alopecia <sup>(a)</sup> )	OR: 2, SD: 1, PD: 0, 1 NA	7 (5–9)	NA (38 <sup>(c)</sup> )
Artale S. [107] (2005, Italy)	19 (8/0/11)	54 (40–77)	ECOG	0:3, 1:5	NA: 8	8:C	<b>8: L-leucovorin + 5-FU + CDDP</b>	NA	12.5%: neutropenia, 25%: alopecia	PR: 3, SD: 2, PD: 3	4 (1–14)	2-year survival: 66%
Hainsworth J.D. [84] (2006, USA)	78 (15/63/0)	NA (58 (21–82) <sup>(b)</sup> )	ECOG	NA (0:8, 1:59, 2:11 <sup>(b)</sup> )	NA: 15	15:C	<b>15: paclitaxel + carboplatin + VP-16</b>	NA	NA (Grade 3: 50% neutropenia, 31%: thrombopenia, 15%: anemia, 18% fatigue, 13%: infection, 10% nausea/vomiting, other: 15%. Grade 4: 51% neutropenia, 19% hospitalization (neutropenia/fever), 8% infection, 40% RBC transfusion, other: 17% 4% treatment related death <sup>(b)</sup> )	NA (CR: 12, PR: 29, SD: 23, PD: 7, NA: 7 <sup>(b)</sup> )	NA (7.5 <sup>(c)</sup> )	NA (14.5 <sup>(c)</sup> )

Table S4. Cont.

Study	Original Cohort <i>n</i>	Median Age	PS Used	PS ( <i>n</i> )	Lymph Met ( <i>n</i> ): Distant Met ( <i>n</i> ) <sup>(a)</sup>	Primary Treatment ( <i>n</i> ) <sup>(a)</sup>	1st-Line Chemotherapy <sup>f</sup> ( <sup>(a)</sup> )	2nd-Line Chemotherapy <sup>f</sup> ( <sup>(a)</sup> )	Grade 3/4 Side Effects ( <sup>(a)</sup> )	Effect of Primary Treatment ( <sup>(a)</sup> )	Median PFS Mo (Range) <sup>(a)</sup> (Range)	MOS Mo (Range) <sup>(a)</sup> (Range)
Bajetta E. [120] (2007, Italy)	2000–2005 40 (5/7/27)	NA (59 (46–70) <sup>b</sup> )	ECOG	NA (0:8, 1:3, 2:2 <sup>b</sup> )	NA: 5	5:C	5: XELOX	NA	NA	NA (PR: 3, SD: 1, PD: 9 <sup>b</sup> )	NA (4 (1–43) <sup>c</sup> )	NA (5 (1–44+) <sup>c</sup> )
Correale P. [59] (2007, Italy)	1999–2003 27 (10/17/0)	NA (63.5 (47–78) <sup>b</sup> )	ECOG	NA (≤ <sup>b</sup> )	NA: 10	10:C (48% <sup>b</sup> ; prior therapy: S, C)	4–10: EP + lanreotide longlasting (6/27 <sup>c</sup> received 5-FU as 1st-line C)	0–6: EP + lanreotide longlasting (6/27 <sup>c</sup> received 5-FU as 1st-line C)	NA (Grade 3: 15 thrombocytopenia, 14 anaemia, 25 neutropenia, 16 fever, 10: other <sup>c</sup> )	NA (CR: 4, PR: 6, SD: 12, PD: 5 <sup>b</sup> )	NA (9 <sup>b</sup> )	NA (relative survival: 24 <sup>b</sup> )
Turner N.C. [119] (2010, UK)	1999–2008 82 (5/10/67)	NA (55 (22–82) <sup>b,c</sup> )	NA	NA (0–1:71, 2:11 <sup>b,c</sup> )	NA: NA (NA:71 <sup>b,c</sup> )	5:C (30% <sup>b,c</sup> ; prior therapy: SSA, INF-alfa, R, other)	5: 5-FU + CDDP + streptozocin	NA	NA (grade 3: 22 nausea/vomitting, 6 fatigue, 6 diarrhea, 21 neutropenia, 6 haemoglobin, 3 platelet, 8: other. Grade 4: 4 nausea/vomitting, 9: other <sup>b,c</sup> )	NA (PR: 9, SD: 3, PD: 3 <sup>b</sup> )	NA (9.1 <sup>b,c</sup> )	NA (31.5 <sup>b,c</sup> )

Table S4. Cont.

Study Author (Year, Country)	Time Period	Original Cohort n (GEP-NEC n/ Other NEC n/ NET n)	Median Age GEP-NEC (Range) (° (Range))	PS Used	PS (n) GEP-NEC (°)	Lymph Met (n): Distant Met (n) (°)	Primary Treatment (n) (°)	1st-Line Chemotherapy (°)	2nd-Line Chemotherapy (°)	Grade 3/4 Side Effects (°)	Effect of Primary Treatment (°)	Median PFS Mo (Range) (° (Range))	MOS Mo (Range) (° (Range))
Deutschbein T. [116] (2011, Germany)	2005–2009	18 (12/1/5)	(39–75)	KPS	NA (<60% <sup>bc</sup> )	7:11	12:C (50% <sup>bc</sup> ; prior therapy: S)	<b>5: carboplatin + paclitaxel + VP-16, 9: EP<sup>c</sup></b>	NA	NA (carboplatin + paclitaxel + VP-16: grade 3: 25% diarrhea/nausea, 13% infection, 13% sensory neuropathy, 50% thrombocytopenia, grade 4: 12% motor neuropathy, 13% thrombocytopenia. EP: grade 4: 17% infection without neutropenia, 17% thrombocytopenia <sup>bc</sup> )	Regime A: PR: 1, SD: 1, PD: 1, 2 NA Regime B: PR: 1, SD: 3, PD: 5	Regime A: (3.2–10.0), Regime B: (2.8–26.4)	NA
Hentic O. [100] (2011, France)	1997–2006	63 (18/0/45)	58 (33–71)	NA	NA	NA: 18 <sup>d</sup>	14:C, 3:S+C, 1:C+ liver S	<b>17: EP, 1: other C</b>	NA	NA	EP: PR: 5, SD: 4, PD: 8	NA	14
Jin S. [86] (2011, China)	2004–2008	15 (9/6/0)	NA (49 (31–74) <sup>b</sup> )	ECOG	NA (0:4, 1:10, 2:1 <sup>b</sup> )	NA: 9	9:C (other therapy NA)	<b>9: IP</b>	NA	NA (10: neutropenia, diarrhea, febrile neutropenia <sup>c</sup> )	NA (CR: 3, PR: 7, SD: 3, PD: 2 <sup>b</sup> )	NA (4.5 <sup>b</sup> )	NA (11.4 <sup>b</sup> )
Welin S. [108] (2011, Sweden, Norway)	2004–2009	25 (17/5/0)	NA (55 (32–76) <sup>b</sup> )	NA	NA (0–2 <sup>b</sup> )	NA: 17	17:C (NA if other therapy)	16-17: EP (1/24 <sup>c</sup> : doxorubicin + docetaxel)	<b>17 temozolomide</b> as 2nd/3rd-line (18/25 2nd-line, 7/25 3rd-line <sup>c</sup> )	NA (all treated with temozolomide: grade 3: 1 leukopenia + thrombopenia <sup>b</sup> )	NA (temozolomide: CR: 1, PR: 7, SD: 9)	NA (6 <sup>b</sup> )	NA (22, from diagnosis: 32 <sup>b</sup> )

Table S4. Cont.

Study Author (Year, Country)	Time Period	Original Cohort <i>n</i> (GEP-NEC <i>n</i> /Other NEC <i>n</i> /NET <i>n</i> )	Median Age (Range)	PS Used	PS ( <i>n</i> ) GEP-NEC ( <sup>a</sup> )	Lymph Met ( <i>n</i> ): Distant Met ( <i>n</i> ) <sup>a</sup>	Primary Treatment ( <i>n</i> ) <sup>a</sup>	1st-Line Chemotherapy <sup>f</sup> ( <sup>a</sup> )	2nd-Line Chemotherapy <sup>f</sup> ( <sup>a</sup> )	Grade 3/4 Side Effects ( <sup>a</sup> )	Effect of Primary Treatment ( <sup>a</sup> )	Median PFS Mo (Range) <sup>a</sup> (Range)	MOS Mo (Range) <sup>a</sup> (Range)
Hentic O. [85] (2012, France)	2000–2010	19 (19/0/0)	53 (29–78)	ECOG	0–1:14, 2:5	NA: 18	19:C	19: EP	<b>19: FOLFIRI</b>	3: neutropenia, 3: diarrhea (2nd-line FOLFIRI)	OR: 6, SD: 6, PD: 7 (2nd-line FOLFIRI)	4	18
Nakano K. [118] (2012, Japan)	2005–2011	44 (9/35/0)	NA (60 (20–80) <sup>b</sup> )	NA	NA (0:24, 1:11, ≥2:2 <sup>b</sup> )	NA: NA (LD:ED: 14:30 <sup>b</sup> )	9:C (57% <sup>b</sup> :prior therapy: other C, S, R)	<b>0–9: IP</b> (9/44 <sup>c</sup> : prior C)	<b>0–9: IP</b> (9/44 <sup>c</sup> : prior C)	NA (grades 3/4: 19 leukopenia, 26 neutropenia, 12 thrombopenia, 7: other <sup>b</sup> )	CR: 1, PR: 3 (OR: 22, CR: 3, PR: 19 <sup>b</sup> )	5.1	NA (1 year: 67% <sup>b</sup> )
Olsen I.H. [117] (2012, Denmark)	2007–2009	31 (15/16/0)	NA (63 (33–82) <sup>b</sup> )	WHO	NA (0:10, 1:16, 2:5 <sup>b</sup> )	NA: 15	15:C	<b>15: carboplatin + VP-16 + vincristine</b>	NA	NA (Grade 4: 8 neutropenia, Grade 3: 7 neutropenia, 3 thrombopenia <sup>b</sup> )	NA (CR: 3, PR: 13, SD: 8, PD: 7 <sup>b</sup> )	NA (6.6 <sup>b</sup> )	NA (15.3 <sup>b</sup> )
Olsen I.H. [122] (2012, Denmark)	NA	28 (18/10/0)	NA (58 (32–81) <sup>b</sup> )	WHO	NA (0–1:22, 2:6 <sup>b</sup> )	NA: 18	18:C	18: carboplatin + VP-16	<b>18: temozolomide as 2nd- or 3rd-line</b> (19/28: 2nd-line, 9/28: 3rd-line)	NA (Grade 3: 1 leucopenia, Grade 4: 2 thrombocytopenia <sup>b</sup> )	All progressed on carboplatin + VP-16 <sup>d</sup> , temozolomide: NA (CR: 0, PR: 0, SD: 6, PD: 10 <sup>b</sup> )	NA (2.4 <sup>b</sup> )	NA (3.5 <sup>b</sup> )

Table S4. Cont.

Study Author (Year, Country)	Time Period	Original Cohort n (GEP-NEC n/ Other NEC n/ NET n)	Median Age GEP-NEC (Range) (° (Range))	PS Used	PS (n) GEP-NEC (°)	Lymph Met (n): Distant Met (n) (°)	Primary Treatment (n) (°)	1st-Line Chemotherapy <sup>f</sup> (°)	2nd-Line Chemotherapy <sup>f</sup> (°)	Grade 3/4 Side Effects (°)	Effect of Primary Treatment (°)	Median PFS Mo (Range) (° (Range))	MOS Mo (Range) (° (Range))
Terashima T. [115] (2012, Japan)	2000–2008	41 (34/7/0)	46.5–63.5 (27–79)	ECOG	0:8, 1:25, 2:1	18: 34 <sup>d</sup>	34:C (NA if other treatment)	17: EP, 17: IP	NA	NA	CR: 0, PR: 6, SD: 6, PD: 4, NA: 2	NA	7.8–14.9
Ahn H.K. [123] (2013, Korea)	2010–2012	37 (13/0/24)	NA (55 (19–71) <sup>e</sup> )	ECOG	NA (0:4, 1:33 <sup>e</sup> )	NA: NA (NA:36 <sup>e</sup> )	13:C (51% <sup>c</sup> :prior therapy: S, R, C)	13: NA regime	13: pazopanib	NA	23% (CR+PR)	5.8	NA
Du Z. [81] (2013, China)	2008–2010	11 (11/0/0)	53 (35–74)	ECOG	0:3, 1:7, 2:1	5: 7	7:C, 4:S+C	11: FOLFIRI	2: EP, 1: CAV	3 neutropenia, 1 thrombopenia, 2 diarrhea, 3 nausea/vomiting	CR: 0, PR: 7, SD: 3, PD: 1	6.5 (2.5–17+)	13 (6–40)
Ferrarotto R. [121] (2013, Brazil)	2003–2011	24 (3–9/ 3–9/15)	NA (56 (23–73) <sup>b,c</sup> )	ECOG	NA (0:5, 1:12, ≥2:7 <sup>b,c</sup> )	NA: 3–9	3–9:C (50% <sup>b,c</sup> :prior therapy: S, C)	0–9: XELOX (12/24:XELOX as 2nd/3rd line)	0–9: XELOX (12/24: XELOX as 2nd/3rd line)	NA (grade 3: 2 neuropathy, 2 diarrhea, 2 other <sup>b,c</sup> )	NA (PR: 7, SD: 17 <sup>b,c</sup> )	NA (9.8 <sup>b,c</sup> )	NA
Lu Z.H. [87] (2013, China)	2009–2011	18 (18/0/0)	60 (31–66)	KPS	<90: 44%, ≥90: 56%	NA: 15	16:C	15: IP, 1: EP	1: IP, others NA	5 leukocytopenia, 9 neutropenia, 2 diarrhea, 1 nausea, 1 vomiting	CR: 1, PR: 7, SD: 3, PD: 3, 2 NA	5.5	10.6

Table S4. Cont.

Study	Time	Original Cohort <i>n</i> (GEP-NEC <i>n</i> / Other NEC <i>n</i> / NET <i>n</i> )	Median Age GEP-NEC (Range) (* (Range))	PS Used	PS ( <i>n</i> ) GEP- NEC (*)	Lymph Met ( <i>n</i> ): Distant Met ( <i>n</i> ) (*)	Primary Treatment ( <i>n</i> ) (*)	1st-Line Chemotherapy † (*)	2nd-Line Chemotherapy † (*)	Grade 3/4 Side Effects (*)	Effect of Primary Treatment (*)	Median PFS Mo (Range) (*) (Range)	MOS Mo (Range) (*) (Range)
Sorbye H. [4] (2013, 12 Nordic hospitals)	71	305 (305/0/0)	60 (24–89)	WHO	0:83, 1:133, 2:49, 3–4:27	188: 301	252:pallative C, 53:BSC (83:S + C/BSC)	<b>129: EP, 67: carboplatin + VP-16, 28: carboplatin + VP-16 + vincristine, 28: others</b>	<b>35: temozolomide, 20: taxotere-based, 44: others,</b> (31: 3rd-line)	NA	1st-line EP: CR: 2%, PR: 29%, SD: 37%, PD: 32%, 1st-line carboplatin + VP-16: CR: 2%, PR: 28%, SD: 32%, PD: 38%, 1st -line carboplatin + VP-16 + vincristine: CR: 0%, PR: 44%, SD: 24%, PD: 32%). 2nd-line C: RR: 18%, 3rd-line C: RR: 7%	EP: 4 (95% CI: 3.1–4.6), carboplatin + VP-16: 4 (95% CI: 2.6–5.4), carboplatin + VP-16 + vincristine: 4 (95% CI: 3.3–4.7)	Without C: 1, with C: 11

Table S4. Cont.

Study	Original Cohort n	Median Age	PS Used	PS (n)	Lymph Met (n): Distant Met (n) (a)	Primary Treatment (n) (a)	1st-Line Chemotherapy f (e)	2nd-Line Chemotherapy f (e)	Grade 3/4 Side Effects (a)	Effect of Primary Treatment (a)	Median PFS Mo (Range) (a (Range))	MOS Mo (Range) (a (Range))
Vélayoudom -Céphise F.L. [90] (2013, France)	28 (10/18/0)	NA (55 (29–79) b)	NA	NA	NA: NA (NA:86% b)	10C (100% b: prior therapy: S, SSA, R, other)	<b>0–10: cisplatin-based</b> (14/28: (14/28: prior C)	<b>0–10: cisplatin-based</b> (14/28: cisplatin-based 2nd-line)	NA	NA (CR/PR: 5, SD: 6, PD: 9 b)	NA	NA (poorly differentiated: 17 (1–113), well-differentiated: 41 (7–143) b)
Olsen I.H. [124] (2014, Denmark)	22 (13/9/0)	NA (65 (35–77) b)	WHO	NA (0:6, 1:10, 2:3, 3:2, 4:1 b)	NA: 13	13:C (NA if other treatment)	NA (all exposed to carboplatin + VP-16 c)	<b>13: topotecan</b> as 2nd/3rd/4th-line	NA (grade 3: 3 leukopenia, 3 thrombocytopenia, grade 4: 2 thrombocytopenia b)	NA (topotecan: CR: 0, PR: 0, SD: 5, PD: 17 b)	NA (2.1 b)	NA (3.2 (from topotecan study inclusion) b)



Table S4. Cont.

Study	Original Cohort <i>n</i>	Median Age	PS Used	PS ( <i>n</i> )	Lymph Met ( <i>n</i> ): Distant Met ( <i>n</i> ) <sup>(a)</sup>	Primary Treatment ( <i>n</i> ) <sup>(a)</sup>	1st-Line Chemotherapy <sup>f</sup> ( <i>n</i> ) <sup>(a)</sup>	2nd-Line Chemotherapy <sup>f</sup> ( <i>n</i> ) <sup>(a)</sup>	Grade 3/4 Side Effects ( <i>n</i> ) <sup>(a)</sup>	Effect of Primary Treatment ( <i>n</i> ) <sup>(a)</sup>	Median PFS Mo (Range) <sup>(a)</sup>	MOS Mo (Range) <sup>(a)</sup>
Yamaguchi T. [92] (2014, Japan)	258 (258/0/0)	62.5 (26–81)	ECOG	0–1:240, ≥2:18	131: 219	76:S+C, 182:C	160: IP, 46: EP, 37: fluoro-pyrimidine-based, 18: other	25: amrubicin, 23: VP-16, cisplatin/ carboplatin, 21: irinotecan, 11: S-1, 5: IP	NA	IP: RR: 50%, EP: RR 28%. 2nd-line: amrubicin: RR 4%, VP-16, cisplatin/ carboplatin: RR 17%, irinotecan: RR: 5%, S-1: RR: 27%, IP: RR: 40%	IP: 5.2, EP: 4	11.5 mo, IP: 13, EP: 7.3 (OBS different distribution of primary site)

GEP-NEC: Gastroenteropancreatic neuroendocrine carcinoma (includes WHO 2010 definition, WHO 2000/2004 definition; poorly differentiated endocrine carcinomas (PDEC), small cell carcinomas, large cell carcinomas and anaplastic/high grade carcinomas); Other NEC: neuroendocrine carcinoma/poorly differentiated carcinoma/small cell carcinoma of sites other than the gastroenteropancreatic system; NET: neuroendocrine tumour/well differentiated endocrine tumour/well differentiated carcinoma/low grade tumour; NA: Not Available; PS: Performance Score; ECOG: Eastern Cooperative Oncology Group; KPS: Karnofsky performance status score; LD (Limited Disease): confined to a localized anatomic region/organ of origin with locoregional lymph node involvement, (encompassable within one (tolerable) radiation therapy treatment port/radiation field), ED (Extensive Disease): beyond LD; Met: Metastases; S: Surgery; C: Chemotherapy; R: Radiation; SSA: Somatostatin Analogues; BSC: Best Supportive Care; CDE: cyclophosphamide, doxorubicin, etoposide; EP: cisplatin + etoposide; 5-FU: 5-fluorouracil; CDDP: cisplatin; IP: irinotecan + cisplatin; FOLFIRI: irinotecan, leucovorin, 5-fluorouracil; CAV: cyclophosphamide + doxorubicin + vincristine; CR: Complete Response; PR: Partial Response; SD: Stable Disease; PD: Disease Progression; OR: Overall response; RR: Response Rate (CR+PR); PFS: Progression Free Survival; MOS: Median Overall Survival; Mo: months; <sup>a</sup> includes GEP-NEC + other NEC<sup>(b)</sup> and/or NET<sup>(c)</sup> if no specific value for GEP-NECs is available; <sup>b</sup> value includes GEP-NEC and other NEC of original cohort; <sup>c</sup> value includes GEP-NECs and NETs of original cohort; <sup>d</sup> part of inclusion criteria; <sup>e</sup> 2 patients received both treatments; <sup>f</sup> high-lighted: study aim/focus.

**Table S5.** Overview of Studies Including Oesophageal Neuroendocrine Carcinomas.

Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Reyes CV [131] (1980, USA)	1947– 1978	1.7	16 (16:0)	NA	M <sup>1</sup> : 58 (29–74)	Average: 5.39 (1–10)	2:10:4	11/12/4/ 6 anorexia	M <sup>1</sup> : 3 (1–12)	NA	NA	NA	16:0	4 + squamous component, 2 + mucosubstance	Average: 2 (1–6)	0
Briggs JC [134] (1983, U.K.)	1969– 1983	2.4	23 (8:15)	NA	M <sup>1</sup> : 69.8 (51–88)	(2.5–14/ "large")	0:5:18	22/1/1/0	(2 weeks– 12 mo)	NA	11	4 (3 liver, 1 lung) <sup>w</sup>	23:0 (16 mix)	2 + squamous differentiation, 1 + glandular differentiation	(8 days–14 mo)	0
Doherty MA [138] (1983, U.K.)	NA	NA	6 (2:4)	NA	(69–83)	(5–8)	0:4:2	4/4/0/ 1 regurgitation	NA	NA	NA	1 (liver)	16 <sup>y</sup> :0	NA	M <sup>2</sup> : 3 (NA)	0
Mori M [153] (1989, Japan)	1972– 1986	NA	10 (8:2)	NA	M <sup>1</sup> : 65 (55–76)	M <sup>1</sup> : 5.4 (2–13)	1:8:1	6/0/4/ 1 tonic-clonic seizure	(1–8)	NA	NA	≥4 (1 brain), NA others	10 <sup>y</sup> :0	2 + squamous and glandular differentiation, 5 + squamous differentiation, 1 NA	(1–33)	1: 33 mo
Tennvall J [162] (1990, Sweden)	1970– 1987	1.25	7 (5:2)	NA	M <sup>2</sup> : 71 (40–89)	(3.5–16)	1:4:2	5/3/3/0	M <sup>2</sup> : 3 (0–12)	NA	NA	3 (2 lung, 1 bone)	7 <sup>y</sup> :0	2 + squamous carcinoma	(1.5–23)	0

Table S5. Cont.

Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Beyer KL [133] (1991, USA)	1969– 1989	4.7	11 (8:3)	NA	M <sup>1</sup> : 64 (53–88)	M <sup>1</sup> : 7.9 (3–14)	2:6:3	8/0/1/ 2 odynophagia, 1 hematemesis	M <sup>1</sup> : 3.9 (1.5–8)	NA	5	9 (4 liver, 3 bone, 1 diaphragma, 1 lung) <sup>w</sup>	11 <sup>y</sup> :0	1 + squamous differentiation, 1 + glandular differentiation	Average: 5.4 (10 days– 16 mo)	0
Craig SR [136] (1995, U.K.)	10 years period	2.7 <sup>a</sup>	16 (5:11)	NA	M <sup>1</sup> : 60 (39–72)	NA	NA	16/16/0/ 2 hoarseness, 1 hematemesis + melena	NA	NA	7	9 (8 distant lymph nodes, 1 liver)	16 <sup>y</sup> :0	5 + squamous carcinoma, 1 + adenocarcinoma	(14 days– 96 mo)	1: 96 mo (S+C)
Huncharek M [141] (1995, USA)	1978– 1993	1.6	13 (11:2)	10: smokers, mean of 44 pack-years (10–80) <sup>f</sup> , 2: heavy alcohol use <sup>f</sup>	M <sup>1</sup> : 67 (51–78)	NA	3:7:3	12/0/2/0	NA	8:5	NA	NA	13 <sup>y</sup> :0	NA	M <sup>2</sup> : 7 (3–17)	1: 24 mo (C+R)
Galanis E. [9] (1997, USA)	1974– 1994	NA	8 (NA)	NA	NA	NA	NA	NA	NA	6:2	NA	NA	8 <sup>y</sup> :0	NA	NA	NA
Nishimaki T [156] (1997, Japan)	1974– 1994	1.6	13 (12:1)	NA	Average: 63.5 (50–78)	M <sup>1</sup> : 7.4 (2.3– 14.0)	0:10:3	NA	NA	NA	12	6 (2 liver, 5 distant lymph nodes)	13 <sup>y</sup> :0	NA	M <sup>2</sup> : 10 (1–106)	2: 64, 106 mo (S+C)

Table S5. Cont.

Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Poynton AR [160] (1997, Ireland)	1977– 1994	1.1	11 (4:7)	NA	M <sup>2</sup> : 71 (39–84)	NA	0:2:9	11/5/6/0	(1–6)	NA	NA	3 (NA)	11 %:0	NA	(22 days– 54 mo)	0
Takubo K [31] (1999, Japan)	NA	NA	21 (15:6)	NA	(48–89)	NA	NA	NA	NA	NA	16 (3 NA)	NA	20 %:0	7 + <i>in situ</i> squamous cell carcinoma, 4 + squamous cell carcinoma, 1 + mucoepidermoid carcinoma	M <sup>2</sup> : 11 (4–26)	2: 24, 26 mo (C+R, C+S)
Bennouna J [132] (2000, France)	1993– 1998	2.8	10 (7:3)	4: smokers <sup>f+</sup> heavy drinkers <sup>g</sup> , 4: smokers	M <sup>2</sup> : 62 (48–73)	NA	0:3:7	10/3/0/ 1 dysphonia, 1 hiccup	(1–3)	4 %:6	NA	6 (3 liver, 1 bone, 2 distal lymph nodes)	10 %:0	NA	M <sup>2</sup> : 15.5 (2–36)	1: 36 mo
Lam KY [146] (2000, Hong Kong)	1982– 1996	1.3	20 (14:6)	14: smokers <sup>h</sup> + drinkers <sup>i</sup> , 2: smokers, 1: drinker	M <sup>2</sup> : 60 (40–84)	M <sup>2</sup> : 7.5 (3.5–15)	1:8:11	16/0/2/ 1 shortness of breath, 1 hematemesis	M <sup>2</sup> : 1 (1–40 weeks)	NA	17	3 (sites NA)	20 %:0	NA	M <sup>2</sup> : 3.4 (13 days– 6 years)	1: 6 years (S+C+R)
Medgyesy DC [150] (2000, USA)	1944– 1997	NA	8 (6:2)	7: smokers <sup>f</sup> , 3: heavy drinkers <sup>f</sup>	M <sup>2</sup> : 58 (31–79)	NA	1:2:5	7/5/2/ 2 hematemesis, 1 SIADH	NA	6:2	NA	2 (sites NA)	8 %:0	0	M <sup>2</sup> : 12.5 (5–57)	2: 33, 57 mo (R, S+C+R)

Table S5. Cont.

Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Mitani M [152] (2000, Japan)	1982– 1999	2.8	5 (5:0)	NA	(39–70)	NA	2:3:0	NA	NA	NA	3	NA (none mentioned)	5 %:0	4 + squamous cell carcinoma	(11 mo– 9 years)	2: 7, 9 years (S, S+C+R)
Cheuk W. [35] (2001, Hong Kong, USA)	NA	NA	7 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	7 %:0	1 + squamous cell carcinoma	NA	NA
Chow V [180] (2001, Hong Kong) <sup>o</sup>	1991– 2000	NA	5 (4:1)	4: smokers <sup>f</sup> , 4: drinkers <sup>f</sup>	M <sup>1</sup> : 58.2 (40–70)	(2–12)	2:1:2	NA	NA	NA	4	0	5 %:0	NA	(3.5–50)	1: 50 mo (S)
Nemoto K [155] (2002, Japan)	1985– 1999	1.8	24 <sup>d</sup> (18:2)	NA	M <sup>2</sup> : 65 (49–76)	NA	NA	NA	NA	20 <sup>g</sup> :0	NA	0	20 %:0	NA	M <sup>2</sup> : 11.7	3: 56, 99, 108 mo, (all S+C+R)
Osugi H [158] (2002, Japan)	1986– 2000	2.0	9 (8:1)	NA	M <sup>2</sup> : 65 (49–71)	NA	1:3:5	8/0/0/0	NA	NA	8 (1 NA)	NA <sup>w</sup>	9 %:0	NA	M <sup>2</sup> : 11.0 (4–76 mo)	1: 76 mo (S+C)
Pantvaitya GH [159] (2002, India)	1985– 2001	0.15	24 <sup>d</sup> (13:5)	NA	M <sup>1</sup> : 62 (48–80)	NA	1:14:3	16/0/1/ 1 hoarseness	NA	10:8	NA	7 (5 liver, 1 coeliac nodes)	18 %:0	2 + epidermoid differentiation, 1 + squamous differentiation	M <sup>2</sup> : 6 (1–48)	1: 48 mo (S+C+R)

Table S5. Cont.

Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Noguchi T [157] (2003, Japan)	NA	1.4	6 (6:0)	NA	M <sup>1</sup> : 70 (55–78)	NA	0:5:1	NA	NA	NA	5	3 (distant lymph nodes)	6 %:0	NA	M <sup>1</sup> : 9.3 (2–24)	1: 24 mo (S)
Brenner B. [7] (2004, USA)	1980– 2002	NA	19 (NA)	8/18 (smokers or drinkers or reflux) <sup>f</sup>	NA	NA	NA	NA	NA	NA	NA	NA	19 %:0	NA	NA	NA
La Rosa S. [58] (2004, Italy)	NA	NA	8 (7:1)	NA	M <sup>1</sup> : 60 (45–73)	M <sup>1</sup> : 3.6 (2.3–5.5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wu Z [165] (2004, China)	1985– 2000	1.0	9 (6:3)	NA	M <sup>1</sup> : 56 (45–66)	Average: 5 (3–7)	1:5:3	6/6/6/0	NA	NA	7	0	6 %:0	3 + squamous carcinoma <i>in situ</i>	(5–37) 3 NA	1: 37 mo (S+C+R)
Hosokawa A [170] (2005, Japan)	1990– 2001	0.8	14 (14:0)	13: smokers <sup>f</sup> + drinkers <sup>f</sup> , 1: drinker	M <sup>2</sup> : 63 (37–71)	11: >5 cm, 3: <5 cm	1:7:6	13/0/1/0	(1–5)	3:11	NA	11 (8 cervical lymph/node, 1 para-aortic lymph node, 3 liver, 1 lung, 1 bone)	14 %:0	NA	M <sup>2</sup> : 7.7 (0.6–89.1)	3: 24, 28.2, 89.1 mo (C, C+R, S+R)
Kim K.O. [13] (2006, Korea)	1998– 2005	NA	6 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 %:0	NA	NA	NA

Table S5. Cont.

Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Li A.F.Y. [42] (2006, Taiwan)	1985– 2004	NA	6 (6:0)	NA	(45–82)	NA	NA	NA	NA	NA	5	0	NA	NA	(1–37)	2: 32, 37 mo
Uccella S. [37] (2006, Italy)	1982– 2004	NA	6 (4:2)	NA	(49–73)	(2–5.5) 1 NA	NA	NA	NA	NA	NA	(6 "malignant")	NA	NA	NA	NA
Hudson E [174] (2007, U.K)	1998– 2005	NA	16 (4:12)	NA	M <sup>2</sup> : 68.5 (48–81)	NA	0:3:13	NA	NA	6:9 1 NA	NA	9 (7 liver, 1 lungs, 2 abdominal lymph nodes, 1 spleen, 1 supraclavicular fossa, 1 pancreas)	16 y:0	NA	M <sup>2</sup> : 13.2 (0.4–104)	3: 30, 48 and 104 mo (all C+R)
Koide N [142] (2007, Japan)	1991– 2005	3.1	10 (9:1)	NA	(51–75)	(3–9.5)	1:7:2	NA	NA	NA	10	0	10 y:0	NA	M <sup>2</sup> : 13.0, M <sup>1</sup> : 22.7 (7–80)	2: 37, 80 mo (C+R, S+C)
Ku GY [143] (2007, USA)	1980– 2005	1.0	25 <sup>d</sup> (18:4)	7: alcohol <sup>f</sup> and tobacco use <sup>f</sup> , 2: tobacco use, 1: alcohol use	M <sup>2</sup> : 60 (51–73)	NA	2:1:19	16/9/11/ 2 bleeding	NA	14:8	NA	8 (5 liver, 4 distant lymph nodes, 1 lung, 1 adrenal, 1 bone, 1 bone marrow)	22 y:0	2 + adenocarcinoma, 1 + squamous cell, 1 + sarcomatoid	M <sup>2</sup> : 19.8 (1.5– 11.2 years)	6: 2.2, 2.6, 2.6, 3.6, 5.8 and 11.2 (all C, then 5: C+R, 1: S +C+R)

Table S5. Cont.

Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Lee S.S. [15] (2007, Korea)	1995– 2004	NA	7 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	7 y:0	NA	NA	NA
Lepage C. [1] (2007, U.K.)	1986– 1999	NA	557 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	557 y:0	NA	Relative 1 year survival: 18.0%	NA
Yau KK [167] (2007, Hong Kong)	1993– 2003	2.2	10 (6:4)	10: smokers <sup>f</sup> + drinkers <sup>f</sup>	M <sup>2</sup> : 69 (55–86)	(2–10)	0:7:3	10/0/0/0	(1–12 weeks)	4:6 <sup>r</sup>	NA	6 (3 distant lymph., 2 liver, 1 brain)	10 y:0	NA	M <sup>2</sup> : 8 (2–62)	2: 34, 62 mo (C+R)
Yun JP [178] (2007, China)	1989– 2005	0.5	21 (16:5)	NA	M <sup>2</sup> : 56 (30–76)	M <sup>1</sup> : 5.8 (1.2– 15.5)	1:12:8	18/0/3/0	M <sup>1</sup> : 2 (10 days– 9 mo)	NA	10	3 (2 liver, 1 thyroid)	21 y:0	2 + well differentiated squamous carcinoma	M <sup>2</sup> : 18.3 (3–71)	1: 46 mo (C+S), 5: 28–71 mo (2: S+C+R, 1: S+C, 1: S+R, 1: R)
Chin K [169] (2008, Japan)	1999– 2004	2.4	15 <sup>d</sup> (11:1)	NA	M <sup>2</sup> : 66 (53–77)	M <sup>2</sup> : 6 (3–13)	1:7:3 (1 NA)	NA	NA	NA	NA	7 (NA)	12 y:0	4 + squamous cell	M <sup>2</sup> : 417 days (97–1626)	3: 1465, 1291, 1626 days (all C+R)
Lv J [148] (2008, China)	1985– 2005	1.2	126 (99:27)	NA	M <sup>2</sup> : 58	M <sup>2</sup> : 5.5	22:78:26	NA	NA	85:41	92	41 (30 distant lymph, others NA)	126 y: 0	NA	M <sup>2</sup> : 12.5 (95% CI: 10.3–14.7)	12: >5 years (3: S, 1: R, 6: S+C, 2: R+C)



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Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Maru DM [149] (2008, USA)	1997– 2007	NA	42 <sup>d</sup> (35:5)	NA	Average: 63 (34–82)	NA	1:5:33 (1 NA)	18/0/0/ 10 reflux, 6 symptoms from metastases, 4 hematemesis/ blood in stool	NA	LD: 17 ED <sup>s</sup> (2 NA)	21 NA	17 (8 liver, 4 abdominal lymph nodes, 2 bone, 3 lung, 1 brain)	13:27	1 + squamous (SC NEC), 15 + adenocarcinoma (3 SC, 12 LC NEC)	M <sup>2</sup> : 14 (2–49)	NA
Shia, J. [29] (2008, USA)	NA	NA	6 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	5:0 (1 mixed)	NA	NA	NA
Lepage C. [79] (2009, EUROCAR E database)	1985– 1994	NA	419 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	419 <sup>y</sup> :0	NA	5-year relative survival rate: 5.3	NA
Sadanaga N [171] (2009, Japan)	1965– 2007	1.2	12 (9:3)	NA	M <sup>2</sup> : 65 (53–82)	M <sup>2</sup> : 5 (2.5–11)	2:7:3	NA	NA	NA	7	0	12 <sup>y</sup> :0	NA	M <sup>2</sup> : 7.6	1: 5 years 3 mo (S, 2 years after: C+R)
Wong Y.N. [65] (2009, U.K.)	1970– 2004	NA	293 (NA)	NA	NA	NA	NA	NA	NA	Na	NA	NA	293 <sup>y</sup> :0	NA	NA	NA
Yamashita H [166] (2009, Japan)	2003– 2006	NA	21 <sup>d</sup> (6:3)	NA	M <sup>2</sup> : 63 (54–68)	NA	2:5:2	7/0/0/0	NA	9:0	7	0	9 <sup>y</sup> :0	NA	3-year overall survival rate: 56% (42–42.8 mo)	2: 34.7, 42.8 mo (C+R)

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Atsumi K [172] (2010, Japan)	1996– 2007	NA	11 (7:4)	NA	M <sup>1</sup> : 69 (44–77)	NA	2:5:4	NA	NA	9:2	8	2 (2 liver, 2 adrenal)	11 %:0	NA	M <sup>2</sup> : 13.2 (4.2–43.6)	1: 24 mo (C+R)
Brennan S.M. [6] (2010, Australia)	1985– 2007	NA	20 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 %:0	NA	NA	NA
Gregory D.L. [77] (2010, Australia)	1996– 2007	NA	5 (NA)	NA	NA	NA	NA	NA	NA	4:1	NA	NA	5 %:0	NA	NA	NA
Kuo CH [145] (2010, Taiwan)	1992– 2007	1.0	18 <sup>d</sup> (14:2)	NA	(34–83)	NA	1: 1: 1 (13 mixed)	11/6/5/ 2 odynophagia, 1 hoarsness	NA	8:8	NA	8 (3 liver, 3 lung, 3 abdominal, 2 bone, 2 abdominal, 1 chest wall, 1 neck mass, 1 distant lymph)	16 %:0	NA	M <sup>2</sup> : 13.5 (4 days– 221 mo)	3: 34, 75 and 221 mo (all S+C)

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Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n SC: n LC	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
Li A.F.Y. [16] (2010, Taiwan)	1989– 2008	NA	17 (16:1)	NA	M <sup>1</sup> : 61.8 ± 14.2 SD	NA	NA	NA	NA	9:7	NA	NA	17 y:0	NA	M <sup>2</sup> : 15 ± 4.46	NA
Li A.F.Y. [34] (2010, Taiwan)	1989– 2009	NA	11 (10:1)	NA	M <sup>1</sup> : 61 ± 13	NA	NA	NA	NA	7:4	NA	4 (NA)	11 y:0	4 + squamous cell carcinoma	M <sup>2</sup> : 27.7 ± 14.8	NA
Lu J [175] (2010, China)	1990– 2004	4.8 <sup>b</sup>	15 (11:4)	11: smokers + drinkers <sup>j</sup> , 6: hot food and quick food <sup>f</sup>	M <sup>1</sup> : 58.8 (40–81)	NA	3:10:2	15/0/5/0	M <sup>1</sup> : 75 days (15 days– 10 mo)	NA	3	0	15 y:0	6 + squamous dysplasia/ carcinoma insitu, 2 + well differentiated squamous carcinoma	M <sup>2</sup> : 19, M <sup>1</sup> : 23.7 (4–108 mo)	1: 108 mo (S)
Tanaka T [161] (2010, Japan)	1986– 2007	0.9	7 (5:2)	NA	(61–72)	(3–8)	1:4:2	NA	NA	4:3	7	3 (3/7 lymph mets; cervical or celiac)	7 y:0	NA	M <sup>2</sup> : 16 (12–93)	2: 45, 93 mo (S+ C)
Chen BS [135] (2011, China)	1990– 2009	1.0	42 <sup>d</sup> (26:14)	NA	M <sup>1</sup> : 57 (39–77)	M <sup>2</sup> : 5 (2–12)	1:32:7	Dysphagia, weight loss, retrosternal pain (numbers NA)	NA	40:0	27	0	40 y:0	NA	M <sup>2</sup> : 13.0	NA

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Grossman R.A. [11] (2011, USA)	1973– 2006	NA	274 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	247 <sup>y:0</sup>	NA	NA	NA
Vos B [173] (2011, Belgium, the Netherlands, USA, Switzerland)	1994– 2004	NA	24 (16:8)	90%: smokers <sup>k</sup> , 70%: drinkers <sup>l</sup>	M <sup>2</sup> : 65 (59–69)	>5 in 56% of cases (2–8) (5 NA)	3:12:8 (1 NA)	19/13/11/0	NA	11:13 <sup>f</sup>	NA	11 (6 liver, 5 distant lymph, 2 lung, 1 brain, 1 bone, 1 thyroid) 2 NA	24 <sup>y:0</sup>	2 + squamous differentiation	M <sup>2</sup> : 11 (8–20)	4: >2 years (1: S+C, 1: S+C+R, 2: NA)
Nakajima Y [154] (2012, Japan)	1996– 2006	0.9	18 (13:5)	NA	M <sup>2</sup> : 67 (40–70)	NA	4:6:8	NA	NA	10:8	14	9	18 <sup>y:0</sup>	NA	M <sup>2</sup> : 16.1	3: 48, 54.2, 76.5 mo (C+R)
Terashima T. [115] (2012, Japan)	2000– 2008	NA	8 (NA)	NA	NA	NA	NA	NA	NA	0:8 <sup>y</sup>	NA	8 <sup>y</sup>	8 <sup>y:0</sup>	NA	NA (oesophagus + gallbladder: M <sup>2</sup> : 14.9)	NA
Ding J [137] (2013, China)	1998– 2007	0.8	212 <sup>d</sup> (66:40)	NA	M <sup>2</sup> : 58 (45–77)	NA	NA	NA	NA	106:0 <sup>1</sup>	NA	0	106 <sup>y:0</sup>	NA	S + C or R + C = M <sup>2</sup> : 22 S or R = M <sup>2</sup> 11	NA



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Kukar M. [144] (2013, USA)	1973– 2009	0.6%	387 (230:157)	NA	M <sup>1</sup> : 68.2	NA	NA	NA	NA	NA	NA	191: distant spread	387 <sup>y</sup> :0	NA	M <sup>2</sup> : 11	NA
Lu X.-J [147] (2013, China)	NA	Mean: 1.26 (0.4–2.8)	1176 (830:346)	NA	M <sup>2</sup> : 57 (25–87)	Average: 5.4 (0.5–17)	121:731:324	78.8%–100%/ NA nr/22.8– 15.6%/NA nr hoarseness	M <sup>1</sup> : 1 (10 days– 20 mo)	347: 120 <sup>u</sup>	NA	99 <sup>x</sup> (NA)	735 <sup>y</sup> :0 (441 NA)	123 + squamous cell carcinoma, 12 + adenocarcinoma, 3 + adenosquamous carcinoma <sup>z</sup>	M <sup>2</sup> : 11.1 (10–15)	NA
Lu Z.H. [87] (2013, China)	2009– 2011	NA	5 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Meng MB [151] (2013, China)	1991– 2009	NA	14 (12:2)	NA	(50–70)	(2–12)	4:10:0	NA	NA	14:0	3	1 (histologic)	14 <sup>y</sup> :0	NA	M <sup>2</sup> : (2–26.3)	1: 26.3 mo (S+C)
Terada T [163] (2013, Japan)	20- years period	0.25	6 (6:0)	NA	M <sup>1</sup> : 73 (62–81)	NA	0:2:4	5/0/0/ 1 vomiting	NA	NA	NA	NA	6 <sup>y</sup> :0	1 + squamous cell carcinoma and adenocarcinoma	M <sup>1</sup> : 13 (2–25)	NA

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Sorbye H. [4] (2013, 12 Nordic hospitals)	2000– 2009	NA	12 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	75%: NA	NA	M <sup>2</sup> : 14 (CI 95%: 2.3–25.7)	NA
Wang SY [164] (2013, China)	2001– 2011	1.3	76 (60:16)	39: tobacco + alcohol abuse <sup>f</sup> , 12: tobacco abuse <sup>f</sup> , 4: alcohol abuse <sup>f</sup>	M <sup>2</sup> : 61 (41–84)	>5 cm: 32, ≤5 cm: 44	16:46:14	57/36/25/ 2 bleeding, 2 cerchnus, 1 other	NA	60:16	44	17 (6 liver, 7 distant lymph nodes, 3 lung, 3 bone, 1 pancreas, 1 stomach)	76 %:0	14 + squamous differentiation, 1 + sarcomatoid differentiation	M <sup>2</sup> : 15.77 (95% CI: 11.0–15.77)	4: >5 years (2: S+C, 2: C+R)
Yan H. [97] (2013, China)	1992– 2012	NA	82 (53:29)	NA	44 ≤ 60 years, 37 > 60 years	48 ≤ 5 cm, 34 > 5 cm	29:37:16	NA	NA	NA	46	31	82 %:0	NA	M <sup>2</sup> : Me: 12, W: 14	NA
Chen W.W. [177] (2014, China)	1998– 2012	NA	211 (164:47)	NA	154 < 60 years, 57 ≥ 60 years	73 < 5 cm, 124 ≥ 5 cm	31:124:56	NA	NA	148: 63 <sup>v</sup>	145	60	211 %:0	NA	M <sup>2</sup> : 13 mo	NA
Chen W.W. [186] (2014, China)	1994– 2012	1.7%	44 (33:11)	NA	15 > 60 years, 29 ≤ 60 years	21/39 < 5 cm, 18/39 ≥ 5 cm	7:22:15	NA	NA	NA	26	10	44 %:0	NA	High level Lgr5: M <sup>2</sup> : 7 mo, Low level: M <sup>2</sup> : 18 mo	18: >2 years

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Okuma H.S. [182] (2014, Japan)	2000– 2013	NA	12 (8:4)	NA	M <sup>2</sup> : 62 (39–72)	NA	NA	NA	NA	0:12	NA	12 ( 9 liver, 6 lymph, 1 lung, 1 bone, 1 bone marrow, 1 stomach, 1 crural muscle)	NA	NA	M <sup>2</sup> : 12.6 (1.1–46.2)	3: 28.6, 32, 46)
Olsen I.H. [124] (2014, Denmark)	3-year period	NA	8 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	8	NA	NA	NA	NA
Yamaguchi T. [92] (2014, Japan)	2000– 2011	NA	85 ° (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA °	M <sup>2</sup> : 13.4	NA
Zhang Z. [168] (2014, China)	2007– 2012	NA	38 (31:7)	NA	M <sup>2</sup> : 61.3 (42–76)	NA	4:23:11	NA	NA	NA	NA	NA	38 %:0	NA	NA	NA
Zhu Y. [176] (2014, China)	1990– 2011	0.94%	64 (46:18)	35: smoking index >400 <sup>f</sup> , 27: risky diets (heavy drinking, hot food, bulky food) <sup>f</sup>	M <sup>2</sup> : 58 (43–76)	M <sup>2</sup> : 5 (1–12)	9:35:16 (4 mixed)	52/0/NA nr/ NA nr hoarsness, abdominal distension, cervial mass	NA	46:18	49	18 (5: liver mets, 2: lung, 1: bone, 1: thyrid)	64 %:0	6 + squamous cell carcinoma, 2 + cardiac adenocarcinoma	M <sup>2</sup> : 12.6	4: >4 years (1: S, 1: S+C, 1: R+C, 1: R+S+C)



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Author (Year, Country)	Time Period	% of Oesophageal Carcinomas that Are NECs	N Oesophageal NECs (Me:W)	Predisposing Factors	Age Year (Range)	Size cm (Range)	Location of Primary Tumour (U:M:L)	Symptoms (n Dysphagia/ Weight Loss/ Pain/Other)	Symptom Duration Mo (Range)	n LD: n ED	n Lymph. Met.	n Distant Met. at Presentation/ Study Start (Sites)	n + Other Histological Components	Overall Survival Mo (Range)	n Survivors >2 Years: Time to Death or End of Follow-Up
TOTAL	(1947– 2011)	Average: 1.6 <sup>c</sup>	3806 <sup>c</sup> (Me: 1897/2704 (70%), W: 807/2704 (30%))	At least 196 smokers or drinkers or both of 254 observed (77.2%)	(25–89)	(0.2–17)	250:1240: 636 (of 2126 <sup>c, m</sup> )	411/119/111 <sup>o</sup> 44 (Of 680 symptoms observed in 525 patients <sup>c, n</sup> )	(0–20)			66 (36%) liver, 57 (31.3%) distal lymph nodes, 20 (11%) lung, 16 (8.8%) bone, 3 (1.6%) brain, 18 (9.9%) other (of 182 mentioned)	225 + squamous (81.5%), 40 + adeno/muco/ glandular (14.5%), 11 + other (4.0%) (of 276 mentioned)		81/2080 (3.9%) <sup>c</sup>

<sup>a</sup> includes oesophageal and proximal gastric cancer; <sup>b</sup> includes only superficial carcinomas of the oesophagus; <sup>c</sup> possible overlapping cohorts with lowest patient number not included. NA not included; <sup>d</sup> lower number of patients included in the study/with complete records, as reflected in the total of (M:W); <sup>e</sup> original cohort of 258 included 21 MANECs, distribution between organ sites is not known; <sup>f</sup> no further specification; <sup>g</sup> excess of 80 g alcohol per day; <sup>h</sup> ≥1 pack of cigarettes/day for >2 years; <sup>i</sup> >2 pints of beer (or the equivalent)/day for >2 years; <sup>j</sup> moderate to severe degree for >10 years; <sup>k</sup> mean of 40 pack-years (range: 20–50); <sup>l</sup> mean of 3 drinks/day (range 2–5); <sup>m</sup> other categorization not included; <sup>n</sup> only precise numbers; <sup>o</sup> includes reflux; <sup>p</sup> LD includes mediastinal lymph node involvement; <sup>q</sup> LD encompasses stages I–III and no metastases; <sup>r</sup> ED includes intra-abdominal lymph nodes in patients with mid-third oesophageal tumours; <sup>s</sup> ED is the equivalent to AJCC stage IVB; <sup>t</sup> LD: visible tumour within a radiation field, ED: visible tumour exceeded beyond LD; <sup>u</sup> Of 467 cases studied; <sup>v</sup> VALSG (no further information); <sup>w</sup> Unknown if any of the lymph metastases are distant; <sup>x</sup> Of 523 studied; <sup>y</sup> part of inclusion criteria; <sup>z</sup> Of 735 analyzed; <sup>aa</sup> Includes patients alive without recurrence, alive with recurrence and those who have died of the disease/other disease 2 years after diagnosis/treatment start; <sup>ab</sup> Numbers may not be exact; extrapolated from incidence rates <sup>ac</sup> Prospective study, all others retrospective or NA; NA: Not Available; NECs: includes small cell/large cell carcinomas, WHO 2010/WHO 2000 definition of gastroenteropancreatic neuroendocrine carcinoma/poorly differentiated endocrine carcinoma/ G3 tumours; Me: Men; W: Women; M<sup>1</sup>: Mean; M<sup>2</sup>: Median; Year: years/years-of-age; U: Upper oesophagus; M: Middle oesophagus; L: Lower oesophagus; SAIDH: Syndrome of inappropriate antidiuretic hormone; Mo: months; LD: tumour confined to a localized anatomic region (the oesophagus/perioesophageal tissue/adjacent organs) with/without locoregional lymph nodes metastases (encompassable within a tolerable radiation therapy treatment portal), ED: outside LD; SC: Small cell, LC: Large cell; Met.: Metastases; CI: Confidence interval; C: Chemotherapy; S: Surgery; R: Radiotherapy.

**Table S6.** Overview of Studies Including Gastric Neuroendocrine Carcinomas.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo	
Rindi G. [197] (1993, Italy)	1970– NA	NA	9.00	M <sup>1</sup> : 61.3 ± 10 years	M <sup>2</sup> : 3.5 (1.5–7)	2 antrum. 2 body-fundus, 5 NA	NA (4 local lymph, 3 local + distant sites, 2 distant only)	5	6	NA	M <sup>1</sup> : 6.5 (1–12)	0	
Rindi G. [198] (1996, Italy)	1970– NA	NA	12.00	M <sup>1</sup> : 63 (41–76)	M <sup>1</sup> : 4.2 (1.5–7)	10 body/fundus, 2 antrum	6 local lymph, 3 local + distant, 3 distant sites	6	NA	3: 2+ well differentiated argyrophil, 1 poorly + well differentiated	M <sup>1</sup> : 6.6 (1–12)	3: 72 mo M <sup>1</sup> follow-up (13–168)	
Matsui K [194] (1998, Japan)	1987– 1996	1.22 <sup>a</sup>	33 (23:10)	M <sup>2</sup> : 60 (44–92)	M <sup>2</sup> : 6.0 (2–14)	15 cardia: 8 M: 10 antrum		32	8 (8 liver, unknown if others)	12:21	19 + adenocarcinoma, 2 + squamous component and adenocarcinoma	M <sup>1</sup> : 14.9 <sup>b</sup>	1: >4 years
Kimura H [205] (1999, Japan)	1973– 1997	0.23 <sup>c</sup>	8 (7:1)	M <sup>1</sup> : 62.6 (44–73)	M <sup>1</sup> : 7.9 (4–12)	1: M, 3: antrum, 2: cardia + M, 1: antrum + M, 2: M + cardia + antrum		8	3 (sites NA)	8: 0	NA	Estimated M <sup>2</sup> : 252 days (45–1520 days)	1: 43
Kimura H. [14] (1999, Japan)	1981– 1994	NA	8 (NA)	(44–73)	(4–12)	NA		8	3 (sites NA)	8 <sup>d</sup> :0	NA	M <sup>2</sup> : 253 days (45–822 days)	2: 747 days, 822 days
Rindi G. [63] (1999, Italy)	NA <sup>e</sup>	NA	16 (13:3)	NA	M <sup>2</sup> : 4.25 (3–5.55)	0 U: 9 M : 7 antrum		15	8	NA	NA	M <sup>2</sup> : 8	NA

Table S6. Cont.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo
Kim K.M. [62] (2002, Korea)	NA	NA	6 (5:1)	(61–81)	(2.5– 10.2)	5: antrum, 1: body + antrum	NA	1 (NA others)	0: 6	6 + adenocarcinoma	NA	NA
Nishikura K [196] (2003, Japan)	1980– 2000	NA	68 <sup>f</sup> (54:14)	Average: 66.5 <sup>f</sup>	NA	NA	NA	NA	NA	48 + adenocarcinoma <sup>f</sup>	NA	NA
Pizzi S. [38] (2003, Italy)	NA	NA	15 (13:2)	(40–91)	NA	NA	10, 2 NA	5 (3 liver, 3 peritoneum, 1 bone) <sup>g</sup>	NA	NA	NA	NA
Brenner B. [7] (2004, USA)	1980– 2002	NA	5 (NA)	NA	NA	NA	NA	NA	5 <sup>d</sup> :0	NA	NA	NA
Furlan D. [39] (2004, Italy)	NA	NA	6 (6:0)	(37–72)	(1.2–14)	NA	5	1 (liver), (1 NA) <sup>g</sup>	NA	NA	Average: 15.7 (5–48)	1: 48
La Rosa S. [58] (2004, Italy)	NA	NA	7 (7:0)	M <sup>1</sup> : 56 (38–74)	M <sup>1</sup> : 7.6 (1.2–14)	NA	NA	7	NA	NA	NA	NA
Borch K [188] (2005, Sweden) <sup>m</sup>	1994– 1999	NA	9 (7:2)	M <sup>2</sup> : 72 (20–80)	M <sup>2</sup> : 4.3 (1.5– 10.0)	NA	NA	7 (7 liver)	NA	NA	5 years survival: 33.3% (2.5%–64.1%)	33.3% alive at 5 years

Table S6. Cont.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo
Furlan D. [43] (2005, Italy)	NA	NA	7 (6:1)	(37–72)	(1.2–14)	NA	6 (1 NA)	1 (liver) (1 NA) §	6 intermediate, 1 large/ intermediate	NA	(5–48)	1: 48
Pizzi S. [55] (2005, Italy)	NA	NA	8 (7:1)	(44–83)	(0.4–10)	NA	5 (1 NA)	3 (3 liver, 2 peritoneum) (1 NA) §	NA	NA	NA	NA
Ishikubo T. [54] (2006, Japan)	NA	NA	16 (13:3)	(51–79)	NA	NA	NA	NA	NA	NA	NA	NA
Jiang SX. [191] (2006, Japan)	1980– 2004	1.48 <sup>b</sup>	42 (34:8)	M <sup>1</sup> : 62.7 (47–79)	M <sup>1</sup> : 6.4 (1.1– 13.0)	15 U: 11 M: 16 L	30 (1 NA)	3 (3 liver)	0: 42 <sup>d</sup> (inclusion)	NA	5 years survival: 31.1%	NA
Kim K.O. [13] (2006, Korea)	1998– 2005	NA	5 (NA)	NA	NA	NA	NA	NA	5 <sup>d</sup> :0	NA	NA	NA
Li A.F.Y. [42] (2006, Taiwan)	1985– 2004	NA	9 (8:1)	(34–88)	NA	NA	7	2	NA	NA	(4–91), 1 NA	3: 91, 65, 25
Uccella S. [37] (2006, Italy)	1982– 2004	NA	11 (10:1)	(41–72)	(3–14)	NA	NA	NA	NA	NA	NA	NA

Table S6. Cont.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo
Boo YJ [187] (2007, Korea)	1993– 2000	NA	12 (10:2)	Average: SC: 63.6 (±8), LC (64.8 (±11))	M <sup>1</sup> : SC: 4.28 (±3.36), LC: 6.00 (± 4.06)	2 U: 2 M: 8 L	NA	5	7:5	NA	15 (CI 95% 1.2–28.8)	NA
Lee H. [70] (2007, Korea)	1996– 2005	NA	9 (NA)	NA	NA	NA	NA	NA	4:5	NA	NA	NA
Lepage C. [1] (2007, UK)	1986– 1999	NA	112 (NA)	NA	NA	NA	NA	NA	112 <sup>d</sup> :0	NA	Relative 1 year survival: 17.6%	NA
Landry CS [204] (2008, USA)	1973– 2004	NA	46 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Shia, J. [29] (2008, USA)	NA	NA	18 (12 gastric + 6 gastro- oesophageal junction) (NA)	NA	NA	NA	NA	NA	7:10 (+1 mixed)	NA	NA	NA
Lepage C. [79] (2009, EUROCARE)	1985– 1994	NA	123	NA	NA	NA	NA	NA	123 <sup>d</sup> :0	NA	5 years relative survival: 7.7	NA

Table S6. Cont.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo
Wong Y.N. [65] (2009, England)	1970– 2004	NA	92 (NA)	NA	NA	NA	NA	NA	92 4:0	NA	NA	NA
Kim BS [192] (2010, Korea)	1993– 2008	NA	52 (45:7)	M <sup>2</sup> : 62.1 (±11.1)	M <sup>1</sup> : 5.44 (±3.7)	14 U: 10 M: 28 L	23	13	NA	17 + adenocarcinoma	5 years survival: 41.6%	41.6% alive at 5 years
Li A.F.Y. [16] (2010, Taiwan)	1989– 2008	NA	8 (7:1)	M <sup>1</sup> :68.0 SD: ±11.1	NA	NA	NA	3 ED	8 4:0	NA	M <sup>2</sup> : 15 (SD ± 49.97)	50% alive at 2 years
Li A.F.Y. [34] (2010, Taiwan)	1989– 2009	NA	15 (15:0)	M <sup>1</sup> : 75 ± 8	NA	NA	NA	7 ED	15 4:0	4 + adenocarcinoma	M <sup>2</sup> : 21.3 ± 29.0 (M <sup>1</sup> SD)	NA
Grossman R.A. [11] (2011 USA)	1973– 2006	NA	147 (NA)	NA	NA	NA	NA	NA	147 4:0	NA	NA	NA
La Rosa S [61] (2011, Italy)	1980– 2009	NA	51 (NA)	NA	M <sup>2</sup> : 5.55 (7 NA)	NA	NA	38 (9 NA)	51:0	12 + non-neuroendocrine glandular/solid growth	"Rate": 75.0 (7 NA)	NA
Okita N.T [206] (2011, Japan)	2000– 2006	NA	22 (19:3)	(27–82)	NA	NA	NA	8	20:2	4 + adenocarcinoma	M <sup>2</sup> : 33	2: >3 years

Table S6. Cont.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo
Annenkov A [64] (2012, Japan)	1985– 2011	NA	51 <sup>i</sup> (40:11)	Average: 69.6 (SD ± 9.8) <sup>i</sup>	M <sup>2</sup> : 4.85 (quartile range 3–6.1) <sup>i</sup>	NA	33 <sup>i</sup>	NA	NA	37 + adenocarcinoma <sup>i</sup>	NA	NA
Endo S. [28] (2012, Japan)	1998– 2011	0.25	7 (5:2)	(46–72)	(1.7–9.8)	NA	5	2	NA	NA	Average: 50.3 (1–122)	3: 24, 62, 122
Faggiano A. [68] (2012, Italy)	1990– 2007	NA	7 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Huang J [189] (2012, China)	1990– 2011	0.16	19 (17:2)	M <sup>2</sup> : 61 (38–73)	M <sup>1</sup> : 7.3 (2–15)	9: cardia, 4: cardia + fundus, 1: corpus + antrum, 1: corpus + fundus, 1: cardica + fundus + corpus + antrum	15	2 (1 liver, 1 retroperitoneal lymph nodes)	19:0	6 + adenocarcinoma	M <sup>2</sup> : 19.5	4: 25.5, 36.6, 48.5, 227.8
Kubota T [193] (2012, Japan)	1986– 2008	0.4 <sup>f</sup>	27 <sup>f</sup> (20:7)	Average: 66.3 (±8.6) <sup>f</sup>	Average: 7.27 (±4.43) <sup>f</sup>	1 U: 5 M: 10 L 1: U+M+L <sup>f</sup>	20 <sup>f</sup>	9 (4 liver, 2 peritoneum, 3 distant lymph) <sup>f</sup>	NA	NA <sup>f</sup>	5 years survival: 43.8% <sup>f</sup>	43.8% alive at 5 years <sup>f</sup>

Table S6. Cont.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo
Terashima T. [115] (2012, Japan)	2000– 2008	NA	10 (NA)	NA	NA	NA	NA	NA	10 <sup>d</sup> :0	NA	NA (oesophagus + gallbladder: M <sup>2</sup> 14.9 mo)	NA
Du Z. [81] (2013, China)	2008– 2010	NA	6 (5:1)	(47–74)	NA	NA	3	4 (3 liver, 1 lung, 1 peritoneum, NA where lymph mets are)	NA	N	(6–24)	0
Feng S.T. [82] (2013, China)	2009– 2013	NA	16 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ishida M [190] (2013, Japan)	1990– 2011	0.64 <sup>j</sup>	51 <sup>j</sup> (39:12)	M <sup>2</sup> : 70 (35–86) <sup>j</sup>	M <sup>2</sup> : 5 (1.5–15) <sup>j</sup>	20U: 18M: 13L <sup>j</sup>	36 <sup>j</sup>	13 (4 distant lymph nodes, 4 liver, 4 peritoneum) <sup>j</sup>	11:40 <sup>j</sup>	7: mixed SC and LC, 36: adenocarcinoma and/or dysplasia <sup>j</sup>	3 years survival: 57.8% <sup>j</sup>	57.8% alive after 3 years
Kim BS. [295] (2013, Korea)	1997– 2012	NA	13 (10:3)	M <sup>2</sup> : 58 (42–81)	NA	4 U: 3 M: 6 L	4	4 (NA)	13 <sup>d</sup> :0	NA	M <sup>1</sup> : 40.3 (1.2–146.5)	4: 65.9, 98.2, 114.6, 146.5
Korse C.M. [3] (2013, Netherlands Cancer Registry) <sup>a</sup>	1990– 2010	NA	203 (NA)	NA	NA	NA	NA	NA	NA	NA	5 years relative survival rate: LC 1990–2000/ 2001–2010: 34/32%. SC 1990–2000/ 2001–2010: 5/6%	NA





Table S6. Cont.

Author (Year, Country)	Time Period	% of NECs in Relation to Gastric Cancers	n Gastric NEC (M:W)	Age (Range)	Size cm (Range)	Location in Primary	n Patients with Lymph. Met.	n Patients with Distant Mets. at Presentation (Sites)	n SC: n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) n: Time until Death/End of Follow-Up Mo
Yamaguchi T. [92] (2014, Japan)	2000– 2011	NA	70 <sup>k</sup> (NA)	NA	NA	NA	NA	NA	NA	NA <sup>k</sup>	M <sup>2</sup> : 13.3 <sup>k</sup>	NA
TOTAL	1970– 2012	0.16–1.48	937 <sup>1</sup>	(27–92)	M <sup>2</sup> : 4.85–6 (1.5–15), M <sup>1</sup> : 4.28–6.4 (0.4–13) <sup>1</sup>	-	235/335 (4 NA) <sup>1</sup>	119/344 (sites where mentioned: 60 sites mentioned: 38 liver, 12 peritoneum, 8 distant lymph nodes, 1 bone, 1 lung) <sup>1</sup>	-	-	-	-

NEC: Neuroendocrine Carcinoma: includes WHO 2000/2004/2010 definition (poorly differentiated endocrine carcinomas, G3 tumours, small cell and large cell carcinomas); NA: Not Available; M: Men; W: Women; M<sup>1</sup>: Mean; M<sup>2</sup>: Median; Mo: Month/s; Year: Year/s; SC: Small Cell; LC: Large Cell; Met.: Metastases; CI: Confidence Intervall; DOD: Dead of disease; AWD: Alive with disease; NED: No evidence of disease; U: Upper stomach; M: Middle stomach; L: Lower stomach; LD: tumour contained within a localised anatomic region, with or without regional lymph node involvement, ED: beyond LD; <sup>a</sup> % of surgically resected gastric cancers; <sup>b</sup> 1 long survivor and 4 patients who died post-op are not in survival equation; <sup>c</sup> % of all patients who underwent a gastrectomy due to gastric cancer; <sup>d</sup> part of inclusion criteria; <sup>e</sup> “Last three decades”; <sup>f</sup> classified after the Japanese Classification of Cancer: ECC; includes both NEC and MANEC (unknown distribution!); <sup>g</sup> Unknown if lymph node metastases could also be distant metastases; <sup>h</sup> Large cell carcinomas only; <sup>i</sup> cohort includes 12 gastric MANECs, unknown distribution; <sup>j</sup> cohort includes 13 gastric MANECs, unknown distribution; <sup>k</sup> in original cohort of 258 NEC, 21 were MANECs; unknown distribution among primary sites; <sup>l</sup> after removal of possible overlapping cohorts with lowest patient numbers, and known number MANECs. Can still include an unknown number of MANECs; <sup>m</sup> prospective study, all other NA or retrospective; <sup>n</sup> not all numbers may be exact due to extrapolation from incidence rates.



Table S7. Cont.

Author (Year, Country)	Time Period	% of PNENs Diagnosed as NECs	n Pancreatic NEC (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary: n Caput: n Corpus:n Cauda	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Sites)	n SC:n LC	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) n: Mo Survival (DOD, AWD or NED)
Haider K. [12] (2006, Canada)	1971–2002	NA	7 (6:1)	NA	NA	NA	NA	6 <sup>1</sup> (NA)	7 <sup>k</sup> :0	NA	NA
Kaifi J.T. [218] (2006, Germany)	NA	14.2	9 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Kim K.O. [13] (2006, Daegu, Korea)	1998–2005	NA	5 (NA)	NA	NA	NA	NA	NA	5 <sup>k</sup> :0	NA	NA
Rodallec M. [104] (2006, France)	1993–2002	18.9	7 (NA)	NA	M <sup>1</sup> : 6 (2–9)	3 (+1 isthmus): 3 corpus/cauda	NA	NA	NA	(1–52)	1: 52
Bilimoria KY [233] (2007, USA)	1985–2004	22.1 <sup>b</sup>	268 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Faggiano, A [76] (2007, France)	1990–2001	NA	6 (NA)	NA	NA	NA	NA	NA	0: 6 <sup>k</sup>	NA	NA
Lepage C. [1] (2007, UK)	1986–1999	NA	68 (NA)	NA	NA	NA	NA	NA	68 <sup>k</sup> :0	Relative 1 year survival: 17.3%	NA
Ploeckinger U. [73] (2007, Germany)	1999–2007	NA	28 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Sellner F. [229] (2007, Austria)	1985–2005	NA	11 (NA)	NA	NA	NA	6 (2 NA)	40% (NA)	NA	5 years survival: 0%	1: 24







Table S7. Cont.

Author (Year, Country)	Time Period	% of PNENs Diagnosed as NECs	n Pancreatic NEC (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary: n Caput: n Corpus:n Cauda	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Sites)	n SC:n LC	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) n: Mo Survival (DOD, AWD or NED)
Roland C.L. [289] (2011, SEER, USA)	1980–2004	63.7 °	247 (NA)	NA	NA	NA	NA	NA	NA	1 year survival: 30% (ca)	NA
Sellner F. [225] (2011, Austria)	1985–2008	55	10 (NA)	NA	NA	NA	NA	NA	NA	1 year survival: 38%	0
Strosberg J.R. [226] (2011, USA)	1999–2010	7.9	32 (NA)	NA	NA	NA	NA	NA	NA	M <sup>2</sup> : 21	NA
Welin S. [108] (2011, Sweden, Norway)	2004–2009	NA	10 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Winter J.M. [208] (2011, USA)	1970–2007	NA	6 (3:3)	M <sup>2</sup> : 50 (27–60)	M <sup>2</sup> : 3 (3–4.5)	6:0:0	5	NA	6 <sup>k</sup> :0	M <sup>2</sup> : 20 (9–173)	3: 26, 73, 173
Faggiano A. [68] (2012, Italy)	1990–2007	NA	19 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Hamilton N.M. [217] (2012, USA)	1994–2009	11.4	19 (NA)	NA	NA	NA	NA	NA	NA	5 years survival: 57%	57% alive at 5 years
Hentic O. [85] (2012, France)	2000–2010	NA	10 (6:4)	(35–72)	NA	NA	NA	9 (NA)	3:5 (2 NA)	(11–28)	2: 28
Korse C.M [95] (2012, The Netherlands)	1994–2009	NA	9 (NA)	NA	NA	NA	NA	NA	0:9	NA	NA



Table S7. Cont.

Author (Year, Country)	Time Period	% of PNENs Diagnosed as NECs	n Pancreatic NEC (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary: n Caput: n Corpus:n Cauda	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Sites)	n SC:n LC	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) n: Mo Survival (DOD, AWD or NED)
Olsen [122] I.H. (2012, Denmark)	NA	NA	7 (NA)	NA	NA	NA	NA	7 (NA)	NA	M <sup>2</sup> : 7	NA
Rindi G. [236] (2012, Germany, Italy, U.K., the Netherlands, France)	1990–2007	5.88	63	17 < 48 years, 24: 48–61, 22: >61	NA	NA	NA	NA	NA	32.9 rate/100 person years	NA
Terashima T [115]. (2012, Japan)	2000–2008	NA	9 (NA)	M <sup>2</sup> : pancreas /biliary tract/ liver: 46.5 (27–79)	NA	NA	NA	9 <sup>k,l</sup> (NA)	9 <sup>k</sup> :0	M <sup>2</sup> : 7.8 (pancreas/biliary/liver)	NA
Yachida S. [230] (2012, USA)	1988–2010	NA	19 (9:10)	M <sup>1</sup> : SC: 56.6 (SD ± 10.1), M <sup>1</sup> LC: 55.8 (SD ± 20.6)	M <sup>1</sup> SC: 5.4 (SD ± 2.2), M <sup>1</sup> LC: 4.5 (SD ± 1.3)	10:3:5 (1 NA)	14 (1 NA)	NA	9:10	M <sup>1</sup> SC: 13.9 (1–25), M <sup>1</sup> LC: 17.9 (1–104)	4: 24, 25, 47, 107
Bertani E. [290] (2013, Italy)	1998–2008	23	10 (NA)	NA	NA	NA	NA	23 <sup>k</sup> (NA)	NA	NA	NA

Table S7. Cont.

Author (Year, Country)	Time Period	% of PNENs Diagnosed as NECs	n Pancreatic NEC (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary: n Caput: n Corpus:n Cauda	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Sites)	n SC:n LC	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) n: Mo Survival (DOD, AWD or NED)
Cherenfant J [212] (2013, USA)	1998–2011	14.1	18 (NA)	NA	2: 1–2 cm, 3: 2.1–3 cm, 2: 3.1–4 cm, 11: >4 cm	NA	NA	NA	NA	NA	NA
Delektorskaya V.V. [67] (2013, Russia)	1994–2011	11.3	8 (NA)	NA	M <sup>1</sup> : 12.5 (2–16)	NA	6	7 (NA)	NA	NA	NA
Henderson-Jackson, E.B. [291] (2013, USA)	1990–2007	10.2	6 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Korse C.M. [3] (2013, Netherlands Cancer Registry)	1990–2010	NA	433 <sup>n</sup> (NA)	NA	NA	NA	NA	NA	NA	5 years relative survival: LC 1990–2000/ 2001–2010: 44/39%. SC 1990–2000/ 2001–2010: 0/6%	NA
Kuo E.J. [292] (2013, USA)	1988–2009	14.2	110 (NA)	NA	≤2 cm: 11, >2 cm: 99	NA	NA	NA	NA	NA	NA
Liu T.C. [239] (2013, USA)	1993–2009	NA	8 (NA)	NA	NA	NA	NA	NA	NA	M <sup>2</sup> : 25.5	NA

Table S7. Cont.

Author (Year, Country)	Time Period	% of PNENs Diagnosed as NECs	n Pancreatic NEC (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary: n Caput: n Corpus:n Cauda	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Sites)	n SC:n LC	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) n: Mo Survival (DOD, AWD or NED)
Martin-Perez [210] (2013, Spain)	2001–2010	11.2 <sup>f</sup>	21 (NA)	NA	NA	NA	NA	NA	NA	5 years survival: 17.4%	NA
Sorbye H. [4] (2013, 12 Nordic hospitals)	2000–2009	NA	71 (NA)	NA	NA	NA	NA	NA	NA	M <sup>2</sup> : 15 (CI 95%: 10.3–19.7)	NA
Toste P.A. [228] (2013, USA)	1989–2012	6	7 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Van der Zwan J.M. [284] (2013 RARECARE, Europe)	1995–2002	NA	128	NA	NA	NA	NA	NA	NA	NA	NA
Vélayoudom-Céphise F.L. [90] (2013, France)	2000–2005	NA	9 (NA)	NA	NA	NA	NA	NA (9 lymph and or distant metastases <sup>l</sup> )	0:9 <sup>k</sup>	NA	NA
Basturk O. [125] (2014, USA)	1988–2012	NA	44 (26:18)	M <sup>1</sup> : 59 (21–82)	M <sup>2</sup> : 4 (2–18)	27:3:11 (3 NA)	34	11 (11 liver, 8 lymph nodes)	17:27	M <sup>2</sup> : 11 (0–104) (of those who died)	NA: 8 alive: median follow-up 19.5 mo (0–71)
Crippa S. [224] (2014, Italy)	1990–2009	10.4	37 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Ellison, T.A. [214] (2014, USA)	1984–2011	6.5	18 (NA)	NA	NA	NA	NA	NA	NA	M <sup>2</sup> : 20 (13–31)	9% alive at 5 years

Table S7. Cont.

Author (Year, Country)	Time Period	% of PNENs Diagnosed as NECs	n Pancreatic NEC (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary: n Caput: n Corpus:n Cauda	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Sites)	n SC:n LC	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) n: Mo Survival (DOD, AWD or NED)
Hashim Y.M. [293] (2014, USA)	1994–2012	11	15 (NA)	NA	NA	NA	10	0 <sup>k</sup>	NA	M <sup>2</sup> : 7.1 years	NA
Liu B. [294] (2014, USA)	1988–2012	3.5	9 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Yamaguchi T. [92] (2014, Japan)	2000–2011	NA	35 <sup>i</sup> (NA)	NA	NA	NA	NA	NA	NA	M <sup>2</sup> : 8.5	NA
TOTAL	1951–2012	14.6 average (24 studies included) <sup>j</sup> (3.9–55)	2149 <sup>j</sup> (M: 69/108 F: 39/108) <sup>j</sup>	(13–90)	(1–18)	43 (+1 isthmus): 6: 13 (+3 corpus/cauda) <sup>j</sup>	75/102 (74%) <sup>j</sup>	82/142 (58%) <sup>j</sup> (met. as inclusion criteria not included) (sites: 21 liver, 9 distant lymph; mentioned in 22 cases)	-	-	-

<sup>a</sup> Prospective study, all others are retrospective or NA; <sup>b</sup> only 12.3% of the total 9821 patients had a histological diagnosis of differentiation; <sup>c</sup> only 311/1483 PNEN cases had a histological grade; <sup>d</sup> only 614/2158 PNENs had a histological classification; <sup>e</sup> only 635/2350 PNEN cases had a histological grade; <sup>f</sup> only 188/483 PNEN cases had a ki-67 index; <sup>g</sup> only information for 16 cases; <sup>h</sup> only 30 included due to inclusion criteria; <sup>i</sup> in larger cohort 21/258 cases were diagnosed as MANEC; unknown distribution); <sup>j</sup> after removal of possible overlapping cohorts with lowest case numbers; <sup>k</sup> part of inclusion criteria; <sup>l</sup> described as “extensive disease”: disease beyond the organ of origin and locoregional lymph nodes; <sup>m</sup> might not be exact numbers: extrapolated from incidence rates; PNEN: Pancreatic Neuroendocrine Neoplasm; NEC: Neuroendocrine Carcinoma: includes WHO 2000/2004/2010 definition (poorly differentiated endocrine carcinomas, G3 tumours, small cell and large cell carcinomas); NA: Not Available; M: Men; W: Women; M<sup>1</sup>: Mean; M<sup>2</sup>: Median; Year: Year/s; SC: Small Cell; LC: Large Cell; Met.: Metastases; CI: Confidence Interval; DOD: Dead of disease; AWD: Alive with disease; NED: No evidence of disease.

**Table S8.** Overview of Studies Including Gallbladder Neuroendocrine Carcinomas.

Author (Year, Country) <sup>a</sup>	Time Period	% of NECs in Relation to Gallbladder Cancer	<i>n</i> Gallbladder NEC (M:W)	<i>n</i> + Gallstones	Age (Range)	Size cm (Range)	Symptoms	<i>n</i> Lymph Met	<i>n</i> Distant Met	<i>n</i> SC: <i>n</i> LC	<i>N</i> + Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) <i>n</i> : Time until Death/End of Follow-Up Mo
Albores-Saavedra J.A. [253] (1980, Mexico)	1954–1978	3.1 <sup>b</sup>	5 (2:3)	5	M <sup>1</sup> : 64 (55–74)	NA	5 right upper quadrant pain, 2 vomiting, 2 hepatomegaly/palpable mass, 3 jaundice, 3 loss of weight, 2 acholia, 1 pruritus, 1 lymphadenopathy,	5	5 (4 distant lymph nodes, 3 liver, 1 diaphragm, 1 peritoneum , 1 pleura)	5:0	1+ well-differentiated adenocarcinoma	NA	0 (1 NA)
Albores-Saavedra J. [248] (1984, Mexico)	NA <sup>c</sup>	4.2	19 (2:17)	18	M <sup>1</sup> : 62.7 (49–79)	All except one >7 cm	NA	18	18 (4 distant lymph mets, 18 liver, 4 lung, 2 pleura, 3 peritoneum, 1 ovaries, 1 diaphragma, 1 pancreas)	19 <sup>d</sup> :0	4 + well-differentiated adenocarcinoma	(NA–13)	0
Guo K.J. [296] (1987, Japan)	NA	2.8	8 (3:5)	3	(44–73)	NA	NA	NA	10 (10 liver, 8 regional lymph nodes, 4 bile ducts, 4 pancreas, 4 duodenum, 4 lung, 3 peritoneum, 2 colon, 2 ovary, 4 other)	8:0	NA	(2–9) (3 NA)	1: 56
Nishihara K [252] (1993, Japan)	NA	4.1	15 (6:9)	4	M <sup>1</sup> : 64.5 (43–83)	NA	11: abdominal pain, 2: abdominal mass, 1: jaundice, 1: ascites	10	9 (9 liver, 3 pancreas, 2 duodenum/omentum/colon, 3 common bile duct, 1 lung) 1 NA	15 <sup>d</sup> :0	2 + adenocarcinoma, 1 + squamous and adenocarcinoma	M <sup>1</sup> survival: 5.8–28.1 (2 mo–5 years 11 mo)	1: 2 years 4 mo, 5 years 11 mo

Table S8. Cont.

Author (Year, Country) <sup>a</sup>	Time Period	% of NECs in Relation to Gallbladder Cancer	<i>n</i> Gallbladder NEC (M:W)	<i>n</i> + Gallstones	Age (Range)	Size cm (Range)	Symptoms	<i>n</i> Lymph Met	<i>n</i> Distant Met	<i>n</i> SC: <i>n</i> LC	<i>N</i> + Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) <i>n</i> : Time until Death/End of Follow-Up Mo
Moskal T.L. [251] (1999, USA)	1971– 1997	3.5	5 (2:3)	4	M <sup>2</sup> : 69 (40–71)	NA	4: abdominal pain, 1: fever, 1: weight loss	5	1–5 (3 liver, 3 lungs, 1 peritoneum, 1 bone)	5 <sup>d</sup> :0	3 + adenocarcinoma	M <sup>2</sup> : 31 (13–189)	3: 31, 44, 189
Maitra A [250] (2001, USA)	NA	NA	12 (7:5)	12	M <sup>1</sup> : 69 (37–85)	M <sup>1</sup> : 3.0 (0–8)	12: Cholecystitis	5	7 (4 liver, 3 soft tissue, 1 pancreas)	12 <sup>d</sup> :0	7 + adenocarcinoma <i>in situ</i> , 4 + adenocarcinoma, 1 + squamous cell carcinoma, 1 + high grade sarcoma	M <sup>2</sup> : 9 (3–25 mo)	1: 25
Brenner B. [7] (2004, USA)	1980– 2002	NA	5 (NA)	NA	NA	NA	NA	NA	NA	5 <sup>d</sup> :0	NA	NA	NA
Lee S.S. [15] (2007, Korea)	1995– 2004	NA	15 (NA) <sup>e</sup>	NA	NA	NA	NA	NA	86% liver mets, peritoneum mets 28%, bone mets 7%	15 <sup>d</sup> :0	NA	M <sup>2</sup> : 4 (1.5–17.5)	0
Lepage C. [1] (2007, UK)	1986– 1999	NA	10 (NA)	NA	NA	NA	NA	NA	NA	10 <sup>d</sup> :0	NA	Relative 1 year survival: 28.2	NA

Table S8. Cont.

Author (Year, Country) <sup>a</sup>	Time Period	% of NECs in Relation to Gallbladder Cancer	<i>n</i> Gallbladder NEC (M:W)	<i>n</i> + Gallstones	Age (Range)	Size cm (Range)	Symptoms	<i>n</i> Lymph Met	<i>n</i> Distant Met	<i>n</i> SC: <i>n</i> LC	<i>N</i> + Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) <i>n</i> : Time until Death/End of Follow-Up Mo
Albores- Saavedra [249] (2009, USA)	1973– 2005	0.38: gallbladder. 0.19: EHBD	71 (25:46) <sup>f</sup>	NA	M <sup>1</sup> : gallbladder: 67.5, EHBD: 68.4	22: >2 cm, 2: ≤2cm, 27 NA	NA	NA	37 (5 NA)	71:0	NA	5 years survival gallbladder: 8%, 5 years survival EHBD: 0%	8% alive at 5 years
Lepage C. [79] (2009, EUROCARE)	1985– 1994	NA	48 (NA)	NA	NA	NA	NA	NA	NA	123 <sup>d</sup> :0	NA	5 years relative survival: 10.3	NA
Wong Y.N. [65] (2009, UK)	1970– 2004	NA	15 (NA)	NA	NA	NA	NA	NA	NA	15 <sup>d</sup> :0	NA	NA	NA
TOTAL	(1954– 2005)	(0.38–4.2)	190 <sup>g</sup>	38/51 (74.5%)	(37–85) <sup>g</sup>			38/51 (75%) <sup>g</sup>	72/122 (59%) <sup>g</sup>				

NEC: Neuroendocrine Carcinoma: includes WHO 2000/2004/2010 definition (poorly differentiated endocrine carcinomas, G3 tumours, small cell and large cell carcinomas); NA: Not Available; M: Men; W: Women; M<sup>1</sup>: Mean; M<sup>2</sup>: Median; Mo: Month/s; Year: Year/s; SC: Small Cell; LC: Large Cell; Met.: Metastases; EHBD: Extra Hepatic Bile Duct; CI: Confidence Intervall; DOD: Dead of disease; AWD: Alive with disease; NED: No evidence of disease; <sup>a</sup> all studies are retrospective; <sup>b</sup> of all invasive gallbladder carcinomas; <sup>c</sup> over a 25-year period; <sup>d</sup> part of inclusion criteria; <sup>e</sup> 14 gallbladder, 1 common bile duct; <sup>f</sup> 54 gallbladder, 17 extrahepatic bile duct; <sup>g</sup> after removal of possible overlapping cohorts with lowest patient numbers.

**Table S9.** Overview of Studies Including Small Intestinal Neuroendocrine Carcinomas.

Author (Year, Country) <sup>a</sup>	Time Period	% of NECs Relative to Carcinomas of the Small Intestine	<i>n</i> Small Intestinal NECs (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary	Lymph. Mets	Distant Mets. at Presentation	<i>n</i> SC: <i>n</i> LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) <i>n</i> : Time until Death/End of Follow-Up Mo)
Nassar H. [255] (2005, USA)	1965–2004	2%–3% of ampullary tumours	14 (10:4)	M <sup>1</sup> : 70	M <sup>1</sup> : 2.5 (0.8–4)	14 Ampullar of Vater	10 (1 NA)	3 (2 brain, 1 liver)	6:8	7 + adenoma, 1 + squamous	M <sup>1</sup> : 14.5 (4–30) <sup>b</sup> 4 alive: 6,10,17,48	1: 48
Lepage C. [1] (2007, UK)	1986–1999	NA	8 (NA)	NA	NA	NA	NA	NA	8 :0	NA	1 years relative survival: 27.1%	NA
Ploeckinger U. [73] (2007, Germany)	1999–2007	NA	13 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Landry C.S. [260] (2008, USA)	1977–2004	NA	48 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Albores-Saavedra J. [258] (2010, USA)	1973–2006	0.25	15 (NA)	NA	NA	15 Ampulla of Vater	NA	NA	9:6	NA	5 years survival: 15.7%	NA
Grossman R.A. [11] (2011, USA)	1973–2006	NA	13 (NA)	NA	NA	NA	NA	NA	13 :0	NA	NA	NA
Dumitrascu T. [256] (2012, Romania)	NA	NA	9 <sup>d</sup> (NA)	NA	(1–3.5)	9 Ampulla of Vater	5.00	NA	NA	NA	(7–52)	1: 52
Korse C.M. [3] (2013, the Netherlands) <sup>e</sup>	1990–2010	NA	97 (NA)	NA	NA	NA	NA	NA	NA	NA	5 years relative survival rate: LC 1990–2000/2001–2010: 25/27%, Small cell 1990–2000/2001–2010: 7/3%	NA



Table S9. Cont.

Author (Year, Country) <sup>a</sup>	Time Period	% of NECs Relative to Carcinomas of the Small Intestine	<i>n</i> Small Intestinal NECs (M:W)	Age Year (Range)	Size cm (Range)	Location in Primary	Lymph. Mets	Distant Mets. at Presentation	<i>n</i> SC: <i>n</i> LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years) (DOD, AWD, NED) <i>n</i> : Time until Death/End of Follow-Up Mo)
Randle R.W. [257] (2014, USA)	1988–2009	NA	58 (NA)	NA	NA	38 duodenum, 20 Ampulla of Vater	NA	NA	NA	NA	NA	NA
Untch B.R. [297] (2014, USA)	1983–2011	NA	10 (NA)	65 ± 11 years	2.6 ± 1	8 Ampulla of Vater, 2 other duodenal	7	0 <sup>f</sup>	NA	NA	M <sup>2</sup> : 15	NA
Yamaguchi T. [92] (2014, Japan)	2000–2011	NA	6 <sup>g</sup> (NA)	NA	NA	NA	NA	NA	NA	NA <sup>g</sup>	M <sup>2</sup> : 29.7 <sup>g</sup>	NA
TOTAL	(1965–2011)	-	205.00	-	-	-	-	-	-	-	-	-

NEC: Neuroendocrine Carcinoma: includes WHO 2000/2004/2010 definition (poorly differentiated endocrine carcinomas, G3 tumours, small cell and large cell carcinomas); NA: Not Available; M: Men; W: Women; M<sup>1</sup>: Mean; M<sup>2</sup>: Median; Mo: Month/s; Year: Year/s; SC: Small Cell; LC: Large Cell; Met.: Metastases; CI: Confidence Intervall; DOD: Dead of disease; AWD: Alive with disease; NED: No evidence of disease; <sup>a</sup> all studies are retrospective; <sup>b</sup> only those who died; <sup>c</sup> part of inclusion criteria; <sup>d</sup> total from a review of the literature after removal of studies already presented; <sup>e</sup> not all numbers may be exact due to extrapolation from incidence rates; <sup>f</sup> all tumours with metastases were excluded; <sup>g</sup> original cohort of 258 NECs includes 21 MANECs, unknown distribution.

**Table S10.** Overview of Studies Including Colorectal Neuroendocrine Carcinomas.

Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Mills S.E. [276] (1983, USA)	NA	NA	5 (2:3)	2:3 (2 cecum, 3 rectum)	(53–74)	(0.3–7)	5	4 (4 liver, 1 peritoneum, 1 lung, 1 bone marrow, 1 paraaortic lymph nodes)	5:0	4 + adenomatous neoplasms	(1–3)	0
Wick M.R. [275] (1987, USA)	NA	NA	10 (5:5)	NA	Average: 63 (40–75)	(3–13)	6	7 (7 liver, other NA)	10:0	1 + adenocarcinoma	Average: 5 (NA–11)	0
Staren, E.D. [263] (1988, USA)	1980– 1987	1.9	13 (7:6)	9:4 (5 cecum, 2 sigmoid colon, 1 transverse colon, 1 descending colon, 4 rectum)	M <sup>2</sup> : 72 (28–89)	NA	8	6 (5 liver, 1 bone, unknown if distant lymph)	7:5	8 + glandular/squamous differentiation, 3 glandular/squamous differentiation + adenoma	M <sup>2</sup> : 7 (2–68)	2: 30, 68
Burke A.B. [266] (1990, USA) <sup>a</sup>	1986– 1988	NA	38 (22:16)	15:22 (7 left colon, 8 right colon, 22 rectum) (1 NA)	Mean: 63	NA	89%	71%	38 <sup>b</sup> :0	17 + adenoma, 10 + adenocarcinoma, 9 + squamous change	36% alive after 5 mo follow-up	NA
Gaffey M.J. [267] (1990, USA)	NA	NA	22 (12:10)	15:7 (9 cecum, 5 sigmoideum, 1 transversum, 7 rectum)	SC M <sup>1</sup> : 64, intermedia te cell M <sup>1</sup> : 66 (34–87)	(0.3–15)	18	15 (13 liver, 1 bone, 1 peritoneum, 1 diaphragm, 1 duodenum)	6:0 (16 intermediate/ small)	15 + adenomatous component, 6 + squamous component	Average 8.2 (1–72) 7 NA	1: 72

Table S10. Cont.

Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Spread C. [271] (1994, Canada)	1964– 1988	NA	16 (NA)	16:0 (NA)	NA	NA	22% Dukes’ stage C	64% Dukes’ stage D (48% liver, 30% liver + other site, 22% other site)	0:16 <sup>b</sup>	NA	M <sup>2</sup> : 4.5 <sup>c</sup>	NA
Galanis E. [9] (1997, USA)	1974– 1994	NA	13 (NA)	NA	NA	NA	NA	NA (6 LD)	13 <sup>b</sup> : 0	NA	NA	NA
Vortmeyer A.O. [272] (1997, USA)	NA	NA	9 (5:4)	7:2 (2 cecum, 4 ascending colon, 1 transverse, 2 rectum)	Average: 49 (36–60)	NA	5	3 (3 liver)	NA	4 + adenocarcinoma, 1 + adenoma, 2 + adenocarcinoma and adenoma	NA	NA
Ordóñez N.G. [36] (2000, USA)	NA	NA	11 (NA)	11:0 (NA)	NA	NA	NA	NA	11 <sup>b</sup> :0	NA	NA	NA
Akintola- Ogunremi O. [274] (2003, USA)	NA	NA	66 (35:31)	NA	M <sup>1</sup> : 62 (30–91)	NA	92% + lymph and/or distant metastases	92% + lymph and/or distant metastases (mostly liver)	36:30	32 + adenoma and/or adenocarcinoma	M <sup>2</sup> : 8–9	2: >3 years
Pizzi S. [38] (2003, Italy)	NA	NA	9 (6:3)	9:0 (NA)	(63–81)	NA	6	3 (3 liver, 1 lung) unknown if lymph are distant mets	NA	NA	NA	NA

Table S10. Cont.

Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Stelow, E.B. [282] (2003, USA)	NA	NA	15 (9:6)	10:3 (6 right colon, 4 sigmoid colon, 3 rectum) (2NA)	M <sup>1</sup> : 73 (44–87)	M <sup>1</sup> : 6.6 (0.4–15)	NA	NA	15 <sup>b</sup> :0	11 + adenoma	NA	NA
Bernick P.E. [264] (2004, USA)	1977– 1998	<1%	38 (17:21) <sup>d</sup>	17:20 (8 cecum, 2 right colon, 1 hepatic flexure, 3 transverse colon, 3 sigmoid colon), 14 rectum, 6 anal canal, 1 appendix)	M <sup>1</sup> : 57 (29–86) <sup>d</sup>	NA	NA	25 (2 NA) <sup>d</sup>	22:16 <sup>d</sup>	NA	M <sup>2</sup> : 10.5 (95% CI: 6.7–18.9) <sup>d</sup>	26% alive at 2 years <sup>d</sup>
Brenner B. [7] (2004, USA)	1980– 2002	NA	25 (NA)	13:12 (13 colon, 10 rectum, 2 anal canal)	NA	NA	NA	NA	25 <sup>b</sup> :0	11 + adenoma, 1 + ulcerative colitis	NA	NA
Furlan D. [39] (2004, Italy)	NA	NA	7 (4:3)	NA	(50–77)	(2.5–7)	5	2 (2 liver) NA if lymph were also mets, 2 NA	NA	NA	Average: 15 (1–72)	1: 72
La Rosa S. [58] (2004, Italy)	NA	NA	10 (6:4)	6:4 (6 right colon, 4 rectum)	Colon: M <sup>1</sup> : 67.5 (50–92), Rectum: m M <sup>1</sup> : 61 (56–67)	M <sup>1</sup> colon: 4 (2.5–7), Rectum: M <sup>1</sup> 3.7 (1.3–7)	NA	9	NA	NA	NA	NA

Table S10. Cont.

Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Furlan D. [43] (2005, Italy)	NA	NA	10 (6:4)	NA	(50–77)	All intermediate -large or intermediate	7	4 (4 liver), NA if lymph mets were distant	NA	NA	(1–72), 2 NA,	1: 72
Grabrowski P. [45] (2005, Germany)	1981– 2001	NA	8 (NA)	4:4 (1 cecum/ascending colon, 3 colon, 4 rectum)	NA	All >2 cm	NA	8	NA	NA	NA	NA
Shida T. [50] (2005, Japan)	1999– 2004	NA	6 (3:3)	3:3 (NA)	(45–78)	NA	NA	3	3:3 (moderate)	NA	Average 7 (1–14)	NA
Haider K. [12] (2006, Canada)	1971– 2002	NA	8 (4:4)	NA	NA	NA	NA	4 ED	8 <sup>b</sup> :0	NA	NA	NA
Hainsworth J.D. [84] (2006, USA) <sup>a</sup>	1999– 2005	NA	9 (NA)	NA	NA	NA	NA (9 lymph nodes or distant metastases )	9 (lymph nodes or distant metastases)	NA	NA	NA	NA
Li A.F.Y. [42] (2006, Taiwan)	1985– 2004	NA	6 (3:3)	6:0 (NA)	(32–79)	NA	6	5	NA	NA	Average: 14 (0–35)	2: 34, 35

Table 10. Cont.

Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Uccella S. [37] (2006, Italy)	1982– 2004	NA	11 (8:3)	NA	(50–85)	(1.3–7)	NA	(11 “malignant”)	NA	NA	NA	NA
Kang H. [5] (2007, USA)	1991– 2000	0.3%	455 (222: 233)	65.7%:29.6% (44.9% right colon, 6.9% transverse colon, 13.9% left colon, 29.6% rectum) (4.6% NA)	M <sup>1</sup> : 67.9 (SD ± 14.4)	NA	NA	62.1% distant, 27.1% regional, 10.8% localized	NA	NA	5 years relative survival: 21.4%	21.4%: alive at 5-year
Lee S.S. [15] (2007, Korea)	1995– 2004	NA	5 (NA)	2:3 (NA)	NA	NA	NA	NA	5 <sup>b</sup> :0	NA	NA	NA
Lepage C. [1] (2007, UK)	1986– 1999	NA	95 (NA)	NA	NA	NA	NA	NA	95 <sup>b</sup> :0	NA	1 year relative survival: 27%	NA
Ploekinger U. [73] (2007, Germany)	1999– 2007	NA	14 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arnold C.N. [265] (2008, Germany)	NA	NA	28 (13:6) (9NA)	25:3 (NA)	(29–92)	NA	NA	(28 “malignant”)	NA	NA	(0–57 weeks) (10 NA)	6: 18–99 weeks



Table S10. Cont.

Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Li A.F.Y. [16] (2010, Taiwan)	1989– 2008	NA	13 (10:3)	NA	M <sup>1</sup> : 61.9 ± 18.5	NA	NA	12 ED	13 <sup>b</sup> :0	NA	M <sup>2</sup> : 6 ± 1.59 (SD)	0
Li A.F.Y. [34] (2010, Taiwan)	1989– 2009	NA	15 (11:4)	NA	M <sup>1</sup> : 54 ± 19	NA	NA	15 ED	15 <sup>b</sup> :0	0	M <sup>2</sup> : 5.1 ± 3.1	NA
Niederle M.B. [66] (2010, Austria) <sup>a</sup>	2004– 2005	NA	8 (NA)	4:4 (NA)	NA	NA	NA	NA	8:0	NA	NA	NA
Shida T. (2010, Japan) [56]	1999– 2007	NA	6 (2:4)	2:4 (NA)	(47–84)	NA	NA	3	2:4	NA	Average: 27 (1–65)	3: 65, 50, 36
Grossman R.A. [11] (2011, USA)	1973– 2006	NA	342 (NA)	NA	NA	NA	NA	NA	342 <sup>b</sup> :0	NA	NA	NA
Patta A. [269] (2011, USA)	2003– 2010	NA	8 (5:3)	3:5 (NA)	M <sup>2</sup> : 64 (31–83)	NA	5	8 (8 liver, 2 lung, 1 peritoneum, 1 bone, 3 distant lymph)	NA	NA	M <sup>2</sup> : 9.5 (3.5–17)	0
Welin S. [108] (2011, Sweden, Norway)	2004– 2009	NA	5 (NA)	NA	NA	NA	NA	5	NA	NA	NA	NA



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Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Faggiano A. [68] (2012, Italy)	1990– 2007	NA	7 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Korse C.M [95] (2012, The Netherlands)	1994– 2009	NA	5 (NA)	5:0 (NA)	NA	NA	NA	NA	2:3	NA	NA	NA
La Rosa [268] (2012, Italy)	1980– 2010	NA	27 (15:12)	26: 0 (17 right colon, 9 left colon) (1 NA)	Average: 67 (34–85)	NA	19	8	12:11 (4 mixed)	11 + non-neuroendocrine component	1 year survival: ca. 20%	4: 11–257 (M <sup>1</sup> : 190)
Olsen I.H. [117] (2012, Denmark)	2007– 2009	NA	6 (NA)	NA	NA	NA	NA	6	NA	NA	NA	NA
Olsen I.H. [122] (2012, Denmark)	NA	NA	5 (NA)	NA	NA	NA	NA	5	NA	NA	NA	NA
Chagpar R. [273] (2013, USA)	NA	NA	528 (NA)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delektorskaya V.V. [67] (2013, Russia)	1994– 2011	NA	8 (NA)	NA	NA	M <sup>1</sup> : 4.3 (2– 9)	6	4	NA	NA	NA	NA

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Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Feng S.T. [82] (2013, China)	2009– 2013	NA	5 (NA)	0:5 (NA)	NA	NA	NA	NA	NA	NA	NA	NA
Furlan D. [281] (2013, Italy)	1989– 2009	NA	21 (13:8)	21:0 (10 right colon, 11 left colon)	M <sup>2</sup> : 69.5 (44–85)	NA	NA	16 stage III–IV (AJCC)	NA	NA	NA	2: 93, 215
Korse C.M [3]. (2013, Netherlands Cancer Registry) <sup>e</sup>	1990– 2010	NA	372 (NA)	NA	NA	NA	NA	NA	NA	NA	5 years relative survival rate: LC 1990–2000/ 2001–2010: 24/22%. SC 1990–2000/ 2001–2010 12/9%.	NA
Sorbye H. [4] (2013, 12 Nordic hospitals)	2000– 2009	NA	82 (NA)	61:21 (NA)	NA	NA	NA	NA	65% rectal tumours: SC, 30% of colon tumours:SC	NA	M <sup>2</sup> : colon: 8 (CI 95%: 6.0–9.9), rectum: 10 (CI 95%: 8.4–13.6)	NA

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Author (Year, Country)	Time Period	% of Colorectal Cancers	n Colorectal NEC (M:W)	n Colonic NEC: n Rectal NEC (n Specified Location)	Age Year (Range)	Size cm (Range)	n Lymph. Met.	n Distant Met. at Presentation/Study Start (Specified Sites)	n SC:n LC	Other Histological Components	Overall Survival Mo (Range)	Long-Term Survivors (>2 Years, DOD, AWD, NED), n: Time Til Death/Follow-Up Mo
Van der Zwan J.M. [284] (2013 RARECARE, Europe)	1995– 2002	NA	172	86	NA	NA	NA	NA	NA	NA	NA	NA
Aytac E. [262] (2014, USA)	1993– 2011	0.33%	25 (8:17)	9:16 (4 right colon, 3 transverse colon, 2 sigmoid colon, 7 rectum, 9 anal canal)	M <sup>1</sup> : 56.4 ± 2.7	NA	NA	9 (7 liver, 3 lung, 2 brain)	NA	6+ adenocarcinoma, 1+ adenosquamous component	NA	NA
Lee J.L. [25] (2014, Korea)	2000– 2010	0.16%	18 (15:5) <sup>f</sup>	12:8 (2 cecum, 4 ascending colon, 1 flexure, 1 transverse colon, 4 left colon, 8 rectum) <sup>f</sup>	M <sup>1</sup> : 64 years ± 11 <sup>f</sup>	M <sup>1</sup> : 5.1 ± 2.5 <sup>f</sup>	NA	10 (6 liver, 2 distant lymph, 2 multi liver + perineal seeding) <sup>f</sup>	8: 6 (4 mixed, 2 MANEC)	NA	M <sup>2</sup> : 16 <sup>f</sup>	NA
Smith J.D. [270] (2014, USA)	1991– 2010	NA	126 (62:64)	70: 58 (38 colon, 23 cecum, 9 sigmoid, 53 rectum, 5 anal canal)	M <sup>2</sup> : 56 (30–91)	M <sup>2</sup> : 4 (0.1– 11)	NA	85 (64 liver, 11 lung, 10 bone, 8 retroperitoneal lymph nodes, 7 peritoneum, 5 inguinal lymph node, 2 brain)	49:23 (18 collision tumour + adenocarci noma)	4 + adenocarcinoma	M <sup>2</sup> : 13.2	3: M <sup>2</sup> 37 mo follow-up

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Yamaguchi T. [92] (2014, Japan)	2000– 2011	NA	31 <sup>g</sup>	NA	NA	NA	NA	NA	NA	NA	M <sup>2</sup> : 7.6 <sup>g</sup>	NA
TOTAL	1964– 2010	0.3–1.9 <sup>h</sup>	2026 <sup>h</sup> (M: 436/841 (52%), W: 405/841 (48%))	COLON: 410/594 <sup>h</sup> , RECTUM: 170/594 <sup>h</sup>	(29–92)	(0.1–11)	79/112 (71%) <sup>h,i</sup>	199/307 (65%) (sites when mentioned: 105 liver, 19 peritoneum, 16 distant lymph metastases, 14 lung, 12 bone, 2 brain, 1 diaphragma, 1 duodenum) <sup>h,i</sup>	-	-	-	-

NEC: Neuroendocrine Carcinoma: includes WHO 2000/2004/2010 definition (poorly differentiated endocrine carcinomas, G3 tumours, small cell and large cell carcinomas); NA: Not Available; M: Men; W: Women; M<sup>1</sup>: Mean; M<sup>2</sup>: Median; Mo: Month/s; Year: Year/s; SC: Small Cell; LC: Large Cell; Met.: Metastases; CI: Confidence Intervall; DOD: Dead of disease; AWD: Alive with disease; NED: No evidence of disease; LD: tumour confined to a localized anatomic region (the oesophagus/perioesophageal tissue/adjacent organs) with/without locoregional lymph nodes metastases (encompassable within a tolerable radiation therapy treatment portal), ED: outside LD; AJCC: American Joint Committee on Cancer; <sup>a</sup> Prospective study, all others NA or retrospective; <sup>b</sup> Part of inclusion criteria; <sup>c</sup> Includes moderately differentiated and well differentiated tumours; <sup>d</sup> Includes 1 appendix NEC; <sup>e</sup> Not all numbers are exact- from incidence rates.; <sup>f</sup> Includes 2 MANEC (unknown distribution); <sup>g</sup> Orignal cohort (mixed NEC primaries) includes 21 MANECs, unknown distribution; <sup>h</sup> after removal of possible overlapping cohorts with lowest case numbers; <sup>i</sup> procent values and LD/ED not included.