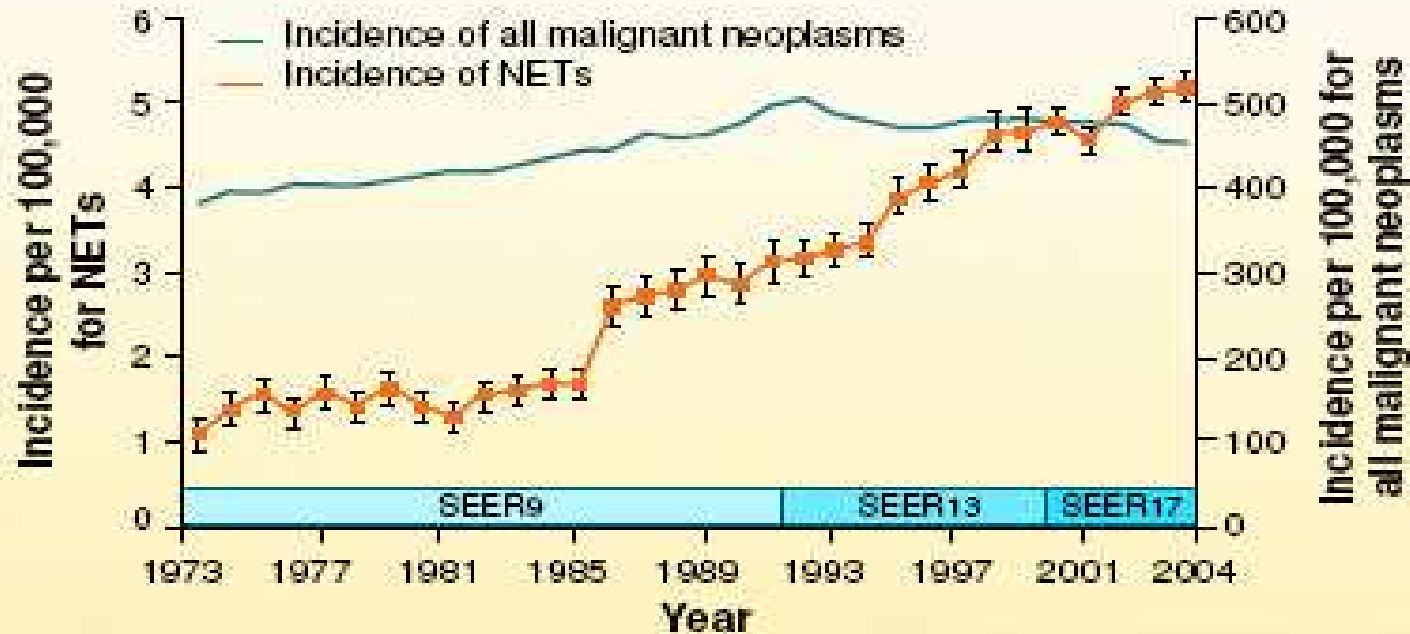


***NET tuumorite diagnostika- ja  
ravivõimalused Eestis***

*Tiit Suuroja*

*PERH*

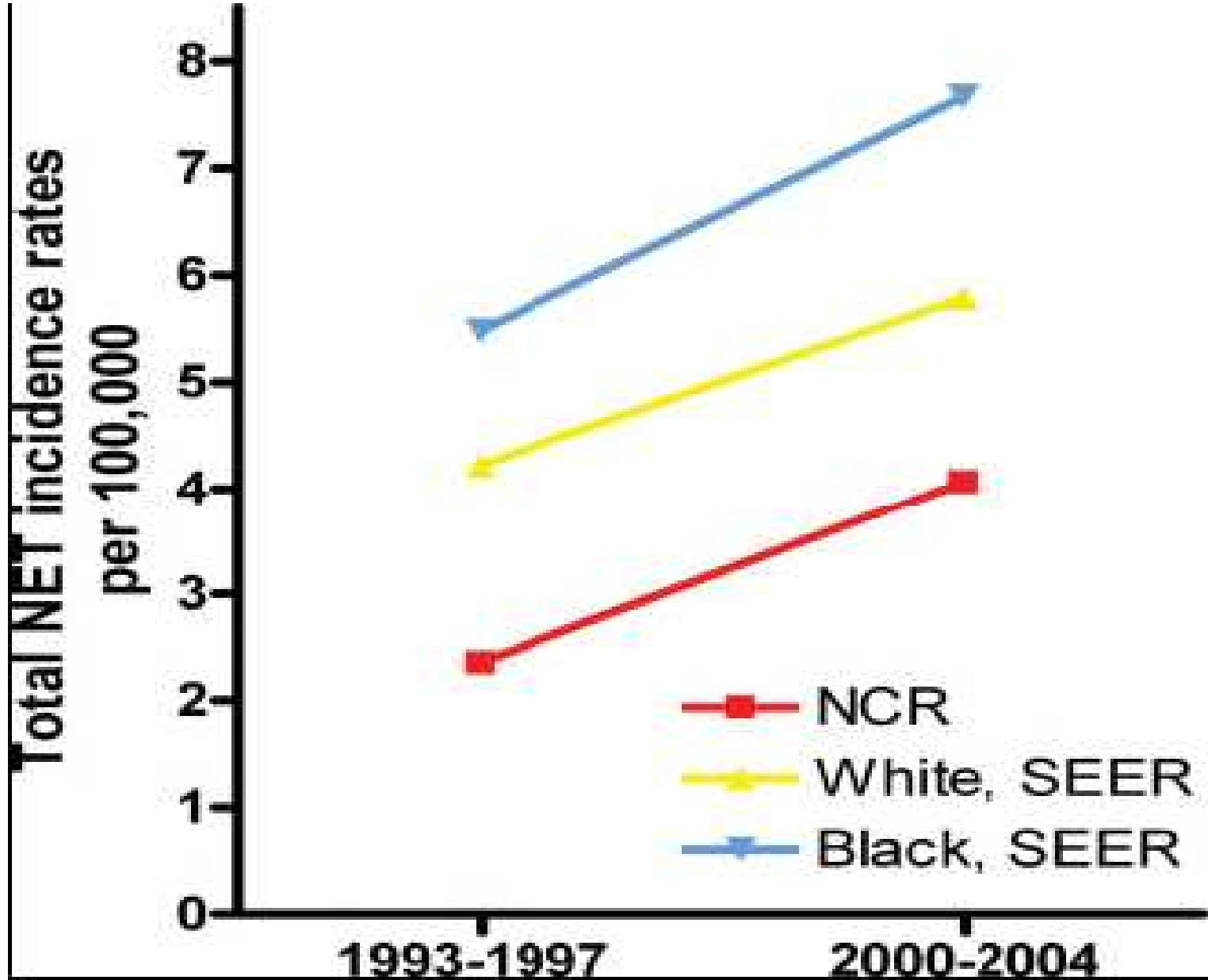
# The incidence of NETs is rising in the USA



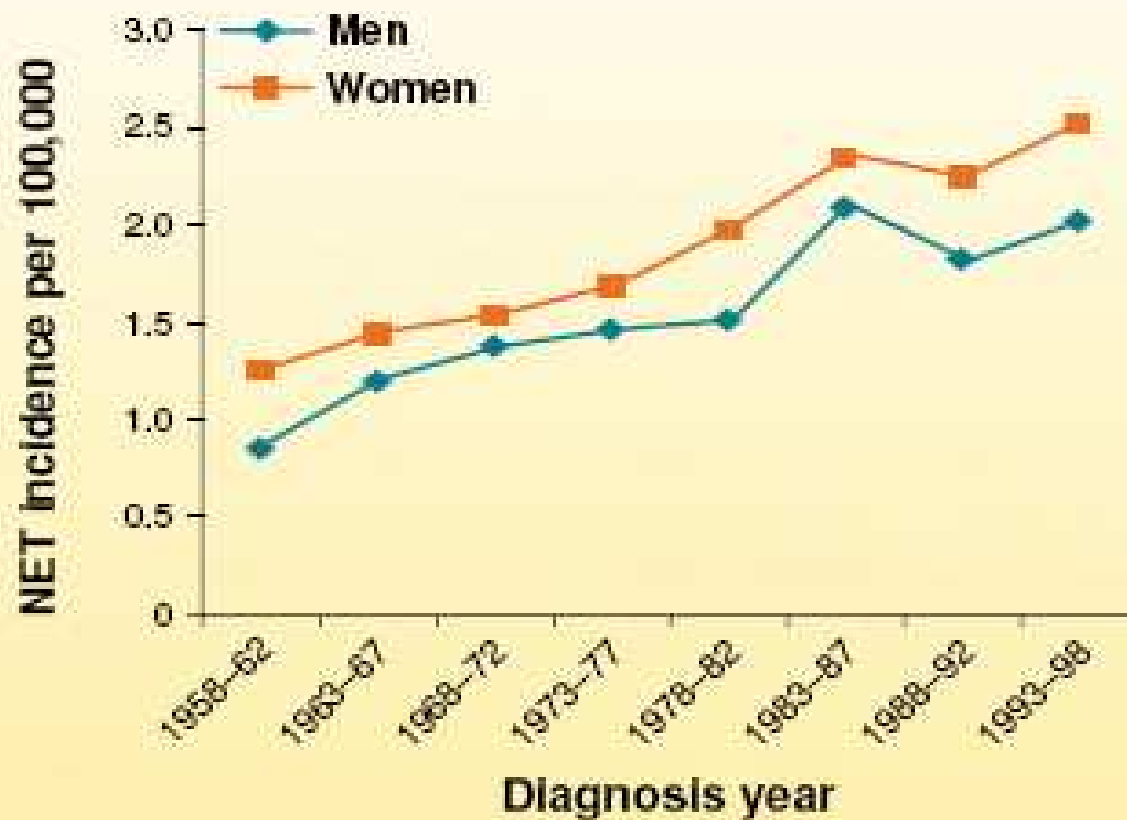
When compared with other gastrointestinal neoplasms, NETs prevalence (35/100,000) is greater than:

- Oesophageal cancer
- Gastric cancer
- Pancreatic cancer
- Hepatobiliary cancer

Adapted from Yao J, et al. J of Clin Oncol. 2008;26:3063-72.



# Sweden: trend of rising NET incidence



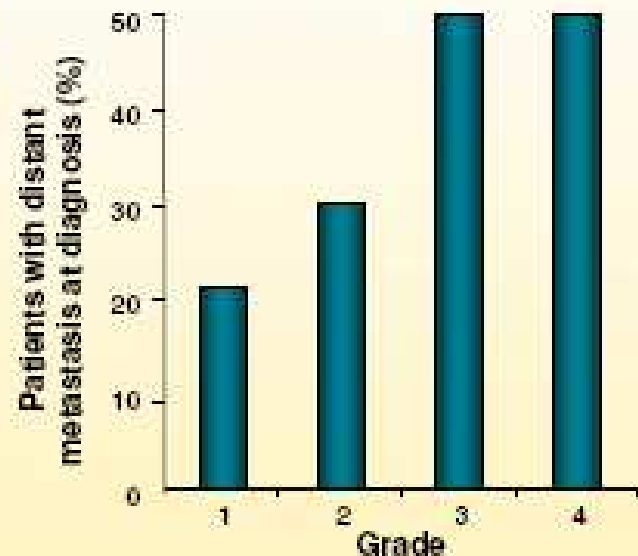
## *Eesti olukord?*

- *ekstrapoleeritud andmetel oodatavad 60-70 esmasjuhtu aastas*
- *PERH-is 20 kuuga 210 NET-i(75 pt.G1,G2)*
- *Vähiregister*

## Stage associated with primary tumour site and histological grade

Primary tumour site	Disease stage (%)		
	Localized	Regional	Distant
Lung	49	23	28
Thymus	28	41	31
Stomach	76	9	15
Duodenum	81	10	9
Jejunum/Ileum	29	41	30
Caecum	14	42	44
Appendix	60	28	12
Colon	45	23	32
Rectum	92	4	5
Pancreas	14	22	64
Liver	45	27	29

Strong correlation between primary tumour site and disease stage ( $p < 0.001$ ).



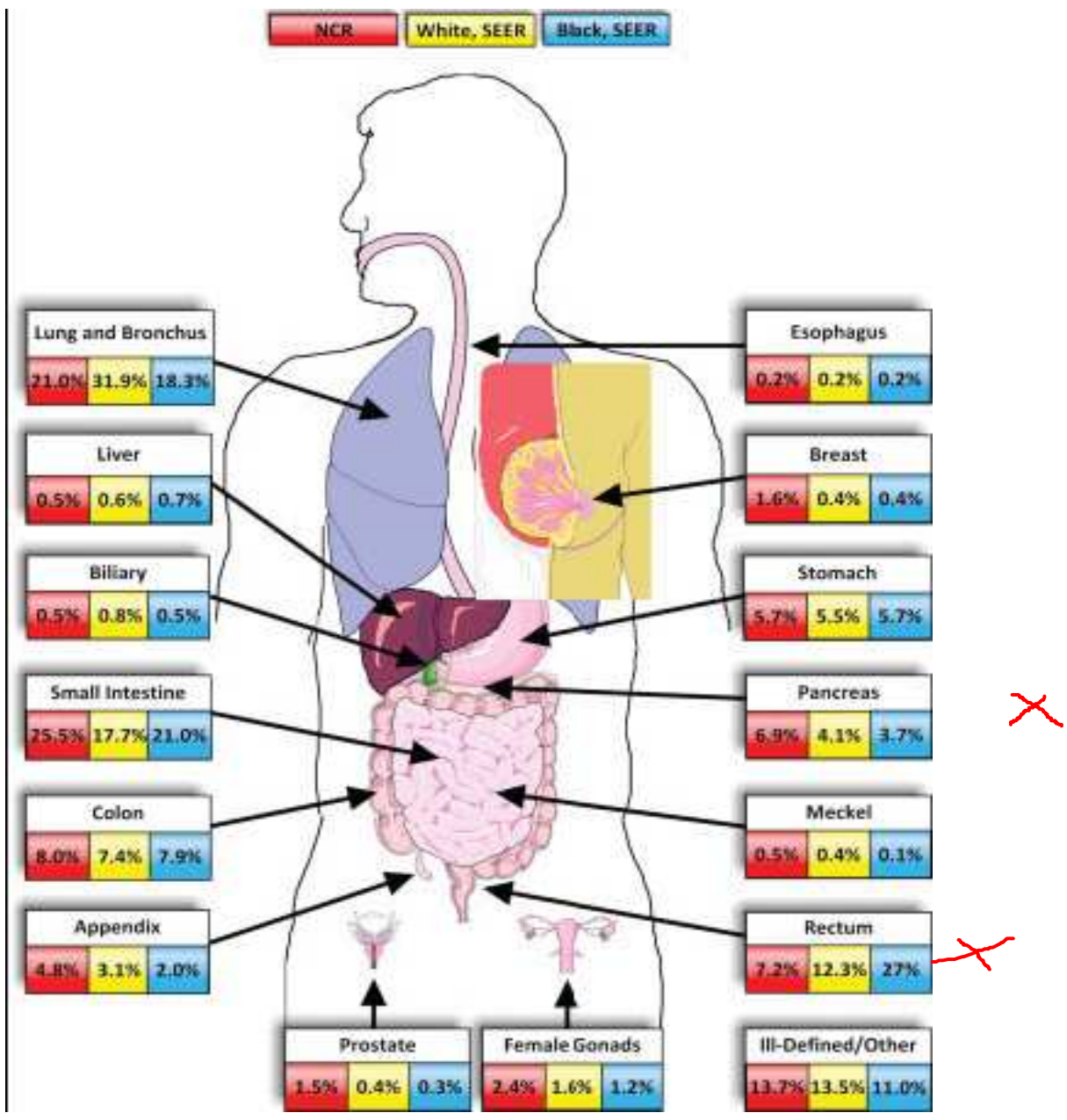
Grade 1: well differentiated

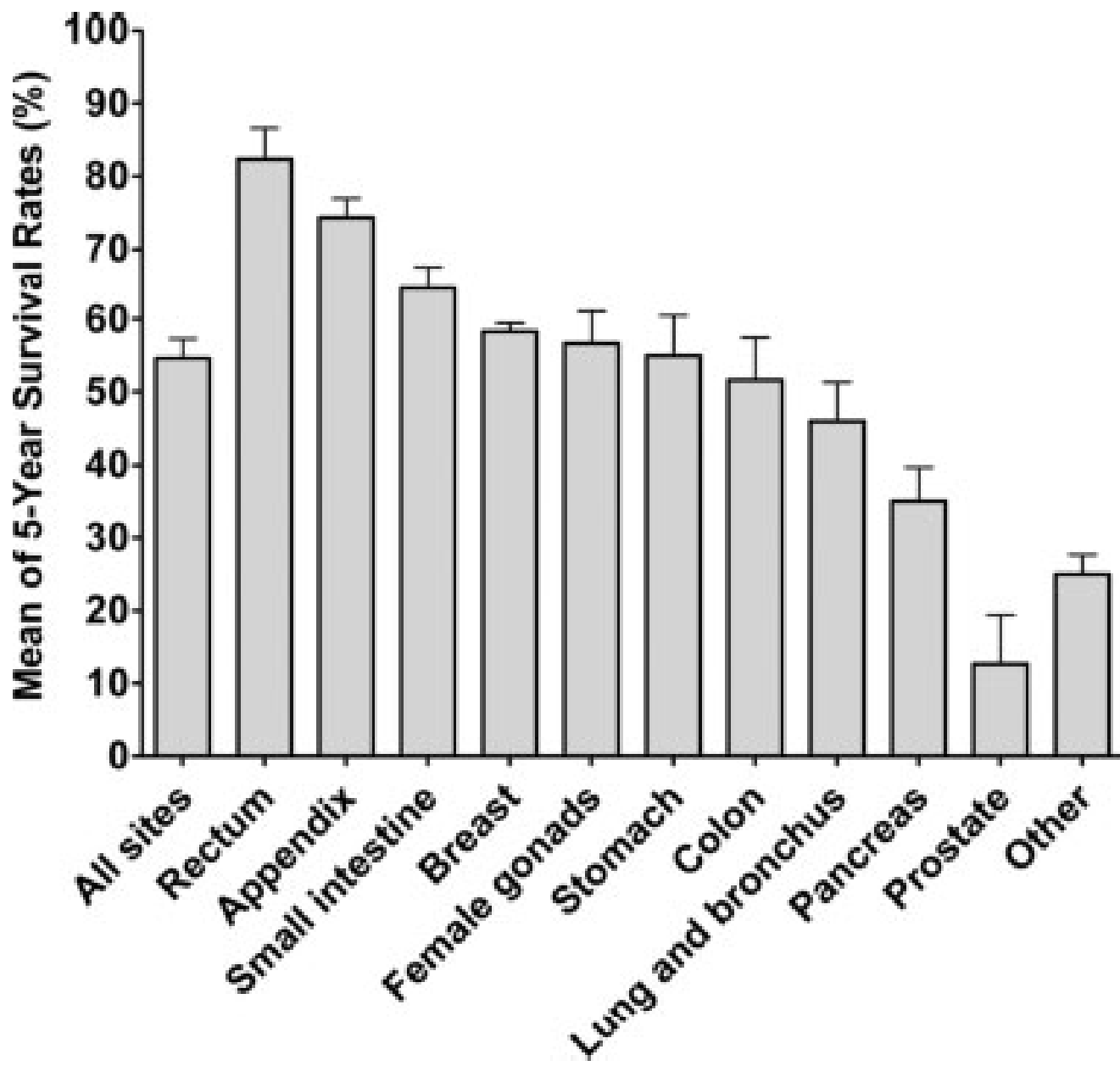
Grade 2: moderately differentiated

Grade 3: poorly differentiated

Grade 4: undifferentiated

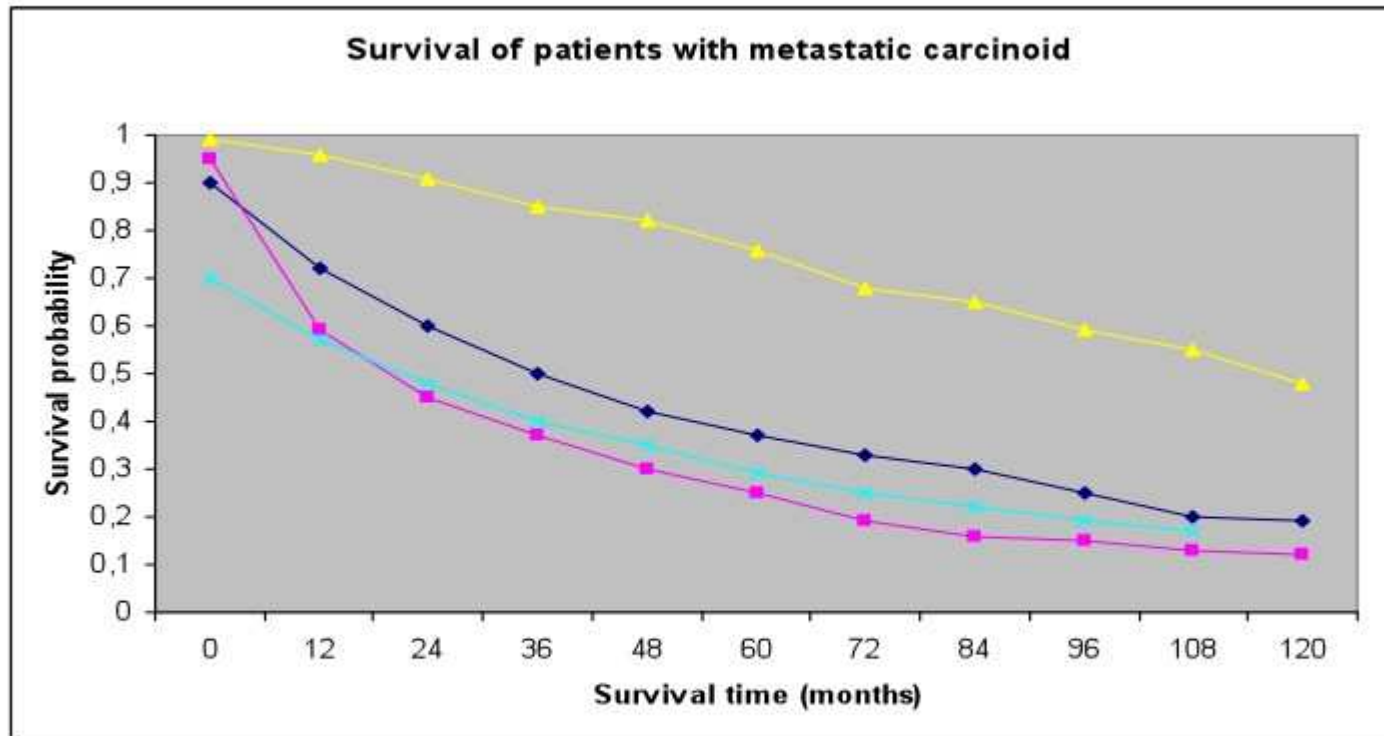
Histological grade also associated with disease stage ( $p < 0.001$ ).







## NET-development during the last four decades – A clinicians view



- 1988-99 n=892 SEER data base. Median survival 37 mo
- 1973-87 n=787 SEER data base. Median survival 17 mo
- Midgut carcinoid, n=284 Uppsala. Median survival 115 mo (5yr survival 77%)
- 1974-2004 SEER. Median survival 33 mo

## *Kompetentsus Eestis?*

- *ajalooliselt vähene teadlikkus, kohati esinemuse puudumine(sic!), diagnostiline pimedus, ravivõimaluste vähesus*
- *01.2011.PERH-is töögrupp, eraldiseisev, spetsialiseeritud konsiilium(patoloog, kirurg, radioloog, endokrinoloog, onkoloog, nukleaarmeditsiini spetsialist)*

# Neuroendocrine Tumors Localization Procedures

	Primary Tumors	Metastases
<b>Ultrasonography</b>	(+)	+
<b>Computerized Tomography</b>	+	++
<b>Magnetic Resonance Imaging</b>	+	++
<b>Somatostatin Receptor Scintigraphy</b>	++	+++
<b>Endoscopic Ultrasonography</b>	++	-
<b>Intra Operative Ultrasonography</b>	++	-
<b>Positron Emission Tomography</b>	+++	+++
<b>(Portal Venous Sampling)</b>		

## *Endoskoopia/UH,CEUS/EUH*

- *instrumentarium adekvaatne,geograafiline kättesaadavus ebaühtlane,spetsialistid?*
- *gastroskoopiate arv normaalne,koloskoopiate arv madalavõitu*
- *EUH,2 keskust(2007 PERH,2010 ITK)*

## *KT/MRI*

- *aparaatide arv , karakteristikud ,geograafiline paiknemine normaalsel tasemel*
- *3 faasi,soole kontrasteerimine veega*
- *80% arteriaalses faasis  
hüpervaskulaarsed,sens.75%,spets.95%*
- *MRI oma spetsiifikaga,võrreldava tundlikkusega*



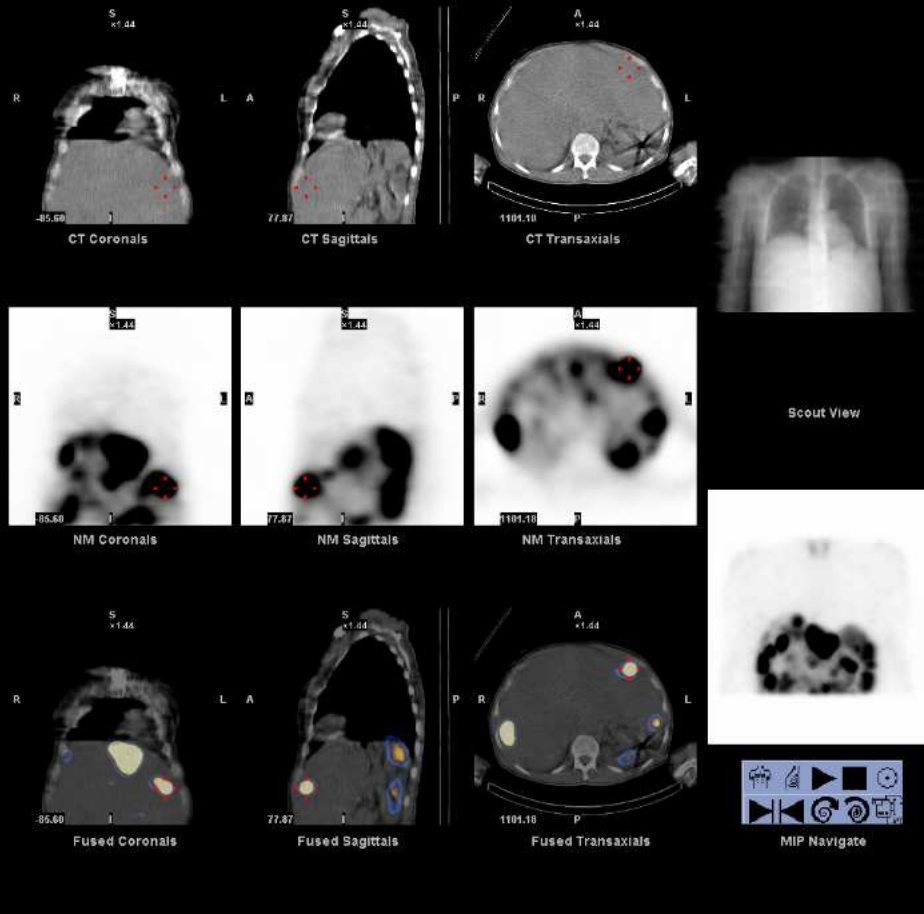
## *Morfoloogiline uuring*

- *tsütoloogia (immunotsütokeemia)*
- *histoloogia(tüüpiline H+E värving+absoluutne histokeemiline miinimum e.Chr,Syn, Ki 67 2000 rakust)*
- *gastriin,serotoniin,SRS?*

## SRS

- *111 In (1995 Keskhaigla)*
- *99 mTc(80 pt aastas PERH)*
- *80-90% tundlikkus,spetsiifilisus*



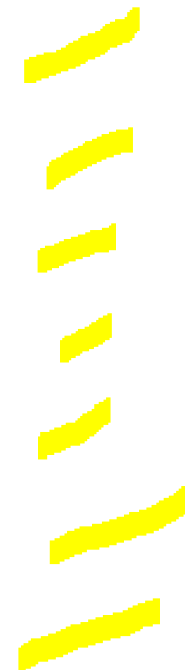


## *PET*

- *tehnoloogia võimaldab 2-3 korda paremat ruumilist lahutusvõimet SPECT-iga võrreldes*
- *FDG-PET(esimene 25.11.2002)*
- *Aastas Eestis umbes 750 PET uuringut(500/253)*
- *Ga 68 vs FDG-PET(Ki 67)*

# Neuroendocrine Tumors Localization Procedures

	Primary Tumors	Metastases
<b>Ultrasonography</b>	(+)	+
<b>Computerized Tomography</b>	+	++
<b>Magnetic Resonance Imaging</b>	+	++
<b>Somatostatin Receptor Scintigraphy</b>	++	+++
<b>Endoscopic Ultrasonography</b>	++	-
<b>Intra Operative Ultrasonography</b>	++	-
<b>Positron Emission Tomography</b>	+++	+++
<b>(Portal Venous Sampling)</b>		



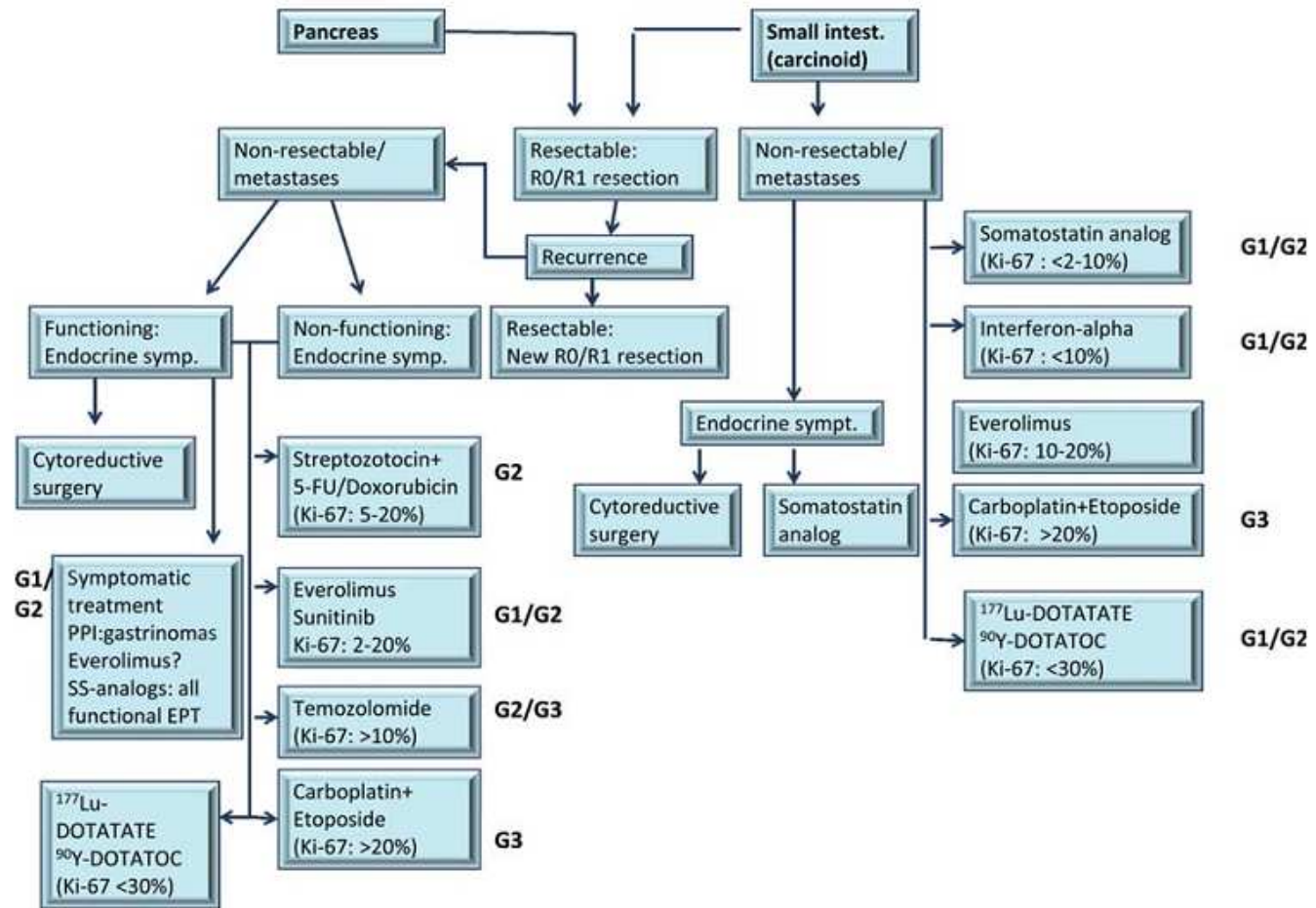
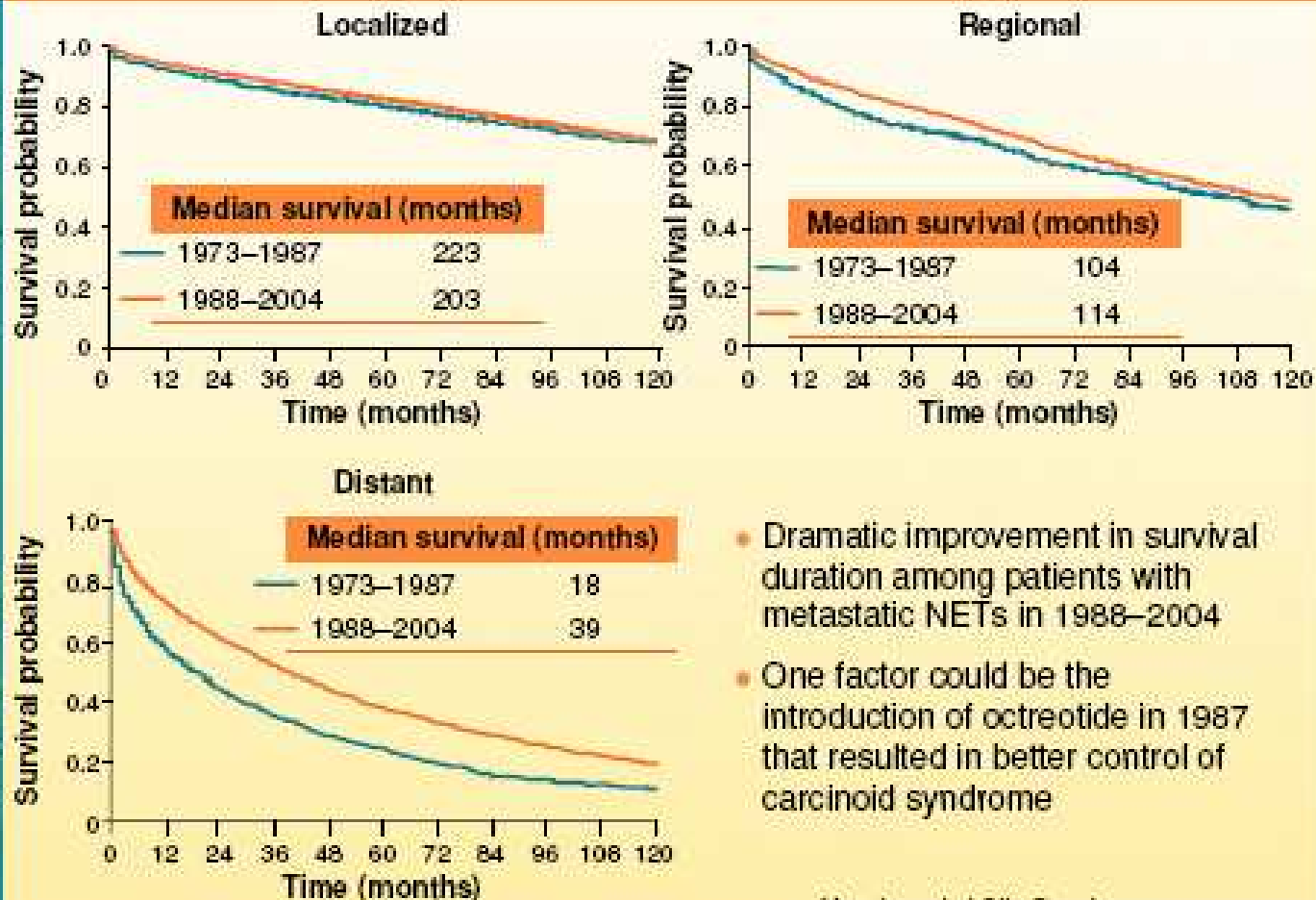


Figure 1 Treatment algorithm.

# Survival duration by period of diagnosis



- Dramatic improvement in survival duration among patients with metastatic NETs in 1988-2004
- One factor could be the introduction of octreotide in 1987 that resulted in better control of carcinoid syndrome

## *Kirurgiline ravi*

- *tsütoreduktsioon(70-90%),palliatiivne*
- *adekvaatne torakaalonkoloogiline võimekus-2 keskust*
- *adekvaatne üldkirurgiline võimekus-3-4 keskust*

## *Bioloogiline ravi*

- *efektiivne sündroomi korral(oktreotiid,lanreotiid) ja antiproliferatiivsena(oktreotiid)*
- *kättesaadav,kaetud koodiga,ebaadekvaatses doosis?*
- *interferoon –kättesaadav,spetsiifilise koodiga katmata*

## *Süsteemravi*

- *kapetsitabiin, bevatsizumab, 5-FU, doksorubitsiin-kättesaadavad*
- *temosolomiid –kättesaadav teise näidustusega*
- *STZ-kallis, rutiinselt mittekättesaadav*
- *sunitiniib, everolimus-kättesaadavad piiratud ulatuses, cup programmipõhiselt*



## *TACE,SIRT*

- *25.02.2011.*
- *kättesaadavus olemas,raviprotokollid?*
- *embolisatsioon vs kemoembolisatsioon?*

## *Peptiidretseptorite radioisotoopravi*

- *06.05.2011.(PERH)*
- *Lu 177-DOTA-TATE*
- *6 patsienti,16 protseduuri*
- *kogunemise intensiivsus 3-4,Ki 67 20%(-30?)*

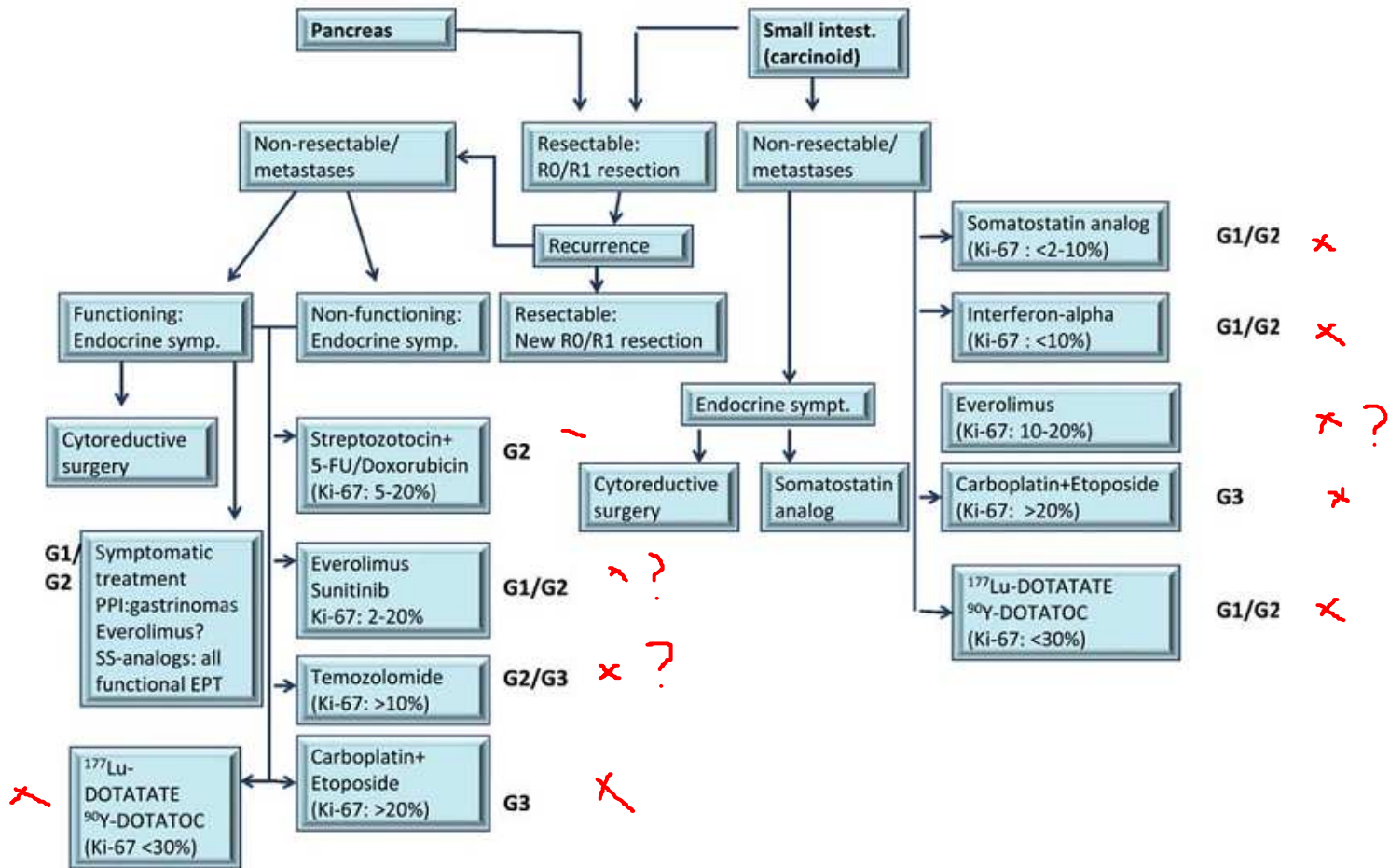


Figure 1 Treatment algorithm.

## *Kokkuvõtteks*

- *NET-sagenev probleem ka meil*
- *ideaalis -pühendunud kompetentsikeskus(suund rahvusvahelisele akrediteeringule)*
- *register,ravijuhendid,eraldi hinnakirjakood?*
- *rahvusvaheline hõlmatus*
- *tugev nukleaarmeditsiin,suhteliselt hea ravimite kättesaadavus,normaalne kirurgia,patoloogia*