Definition of SGI/SSMI-categories using NEMS and SAS

Kommission Patientenklassifzierung der SGI - KPK
Commission pour la classification des patients - CCP

A simple scoring system: General requirements

- For general use in all Swiss ICU's
- Simple
- Objective and reproducible
- Validated (i.e. measures what it is intended to)

A simple scoring system: General requirements

- Scoring the patient (i.e. assigning a patient to a SGI/SSMI-category) should be simple, uniform and objective

- Scoring
  - **Is required** to document the patient process (as required by *KAI*, *KWFB* and *paritätische Kommission*)
  - **Serves as basis** for the reimbursement system (Tarmed)
  - **May be used** to calculate indicators for quality management
  - **Might serve as basis** for an ICU-specific module in Swiss-DRG
  - **May have some limited use** as a tool in human resource management

A simple scoring system: General requirements

- Scoring the patient (i.e. assigning a patient to a SGI/SSMI-category) should be simple, uniform and objective

- Scoring
  - **Is requir**
    (as require
  - **Serves as**
  - **May be used** to calculate indicators for quality management
  - **Might serve as basis** for an ICU-specific module in Swiss-DRG
  - **May have some limited use** as a tool in human resource management

Taylor C J et al. Workload management in an emergency department: counting the **uncountable** and predicting the **unpredictable**. J Accid Emerg Med 1997, 14:88-91.

Hughes M. Nursing workload: an **unquantifiable** entity. J Nurs Manag 1999, 7:317-22.

SGI/SSMI-categories: Acutal definitions

Kategorie	Pflegepersonal pro Schicht	Zeitbedarf (Min/h)	Zeitbedarf (h/Tag)
1A	4/3	> 40	> 16
1B	3/3	30 – 39	12 – 16
2	2/3	20 – 29	8 – 12
3	1/3	< 20	< 8

Der Pflegepersonalbedarf auf Intensivstationen, Schriftenreihe SKI Bd. 41 1989, p.72ff
(see also: Critical Care Medicine, JAMA 1983, 250:798-804)

Tarmed 1.2 (ab 01.01.05)

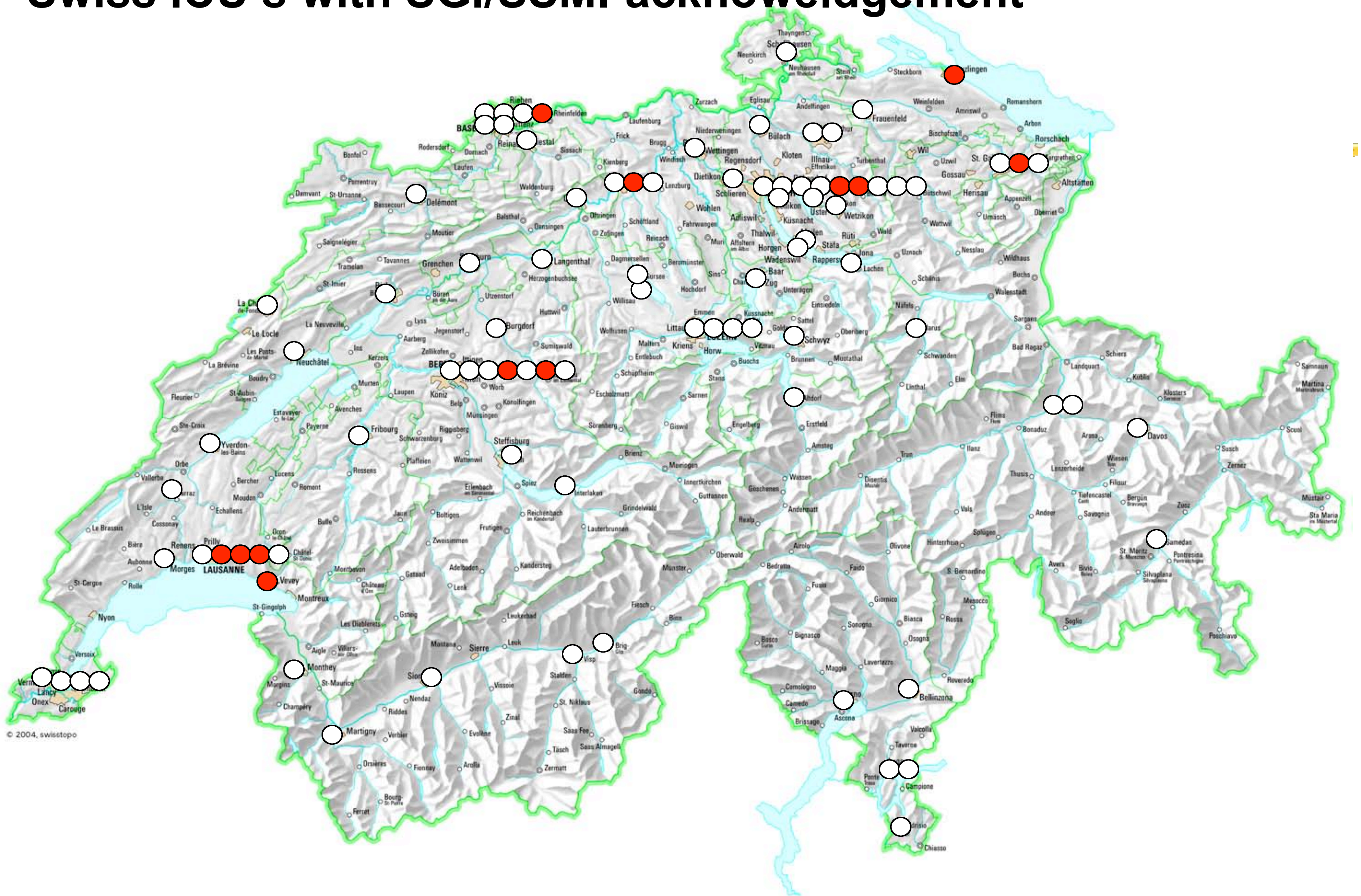
Intensivpflegestationen (IPS)

	Ärztliche Leistung	Nichtärztliche Leistung IPS	Nichtärztliche Leistung Verbr.-IPS	Nichtärztliche Leistung Neo-IPS
Kat. 1A **Erste 2 Std.** **Jede weitere 8 Std.**	172 239	621 1150	657 1295	619 1141
Kat. 1B **Erste 2 Std.** **Jede weitere 8 Std.**	172 63	621 882	657 1027	619 874
Kat. 2 **Erste 2 Std.** **Jede weitere 8 Std.**	172 28	621 615	657 760	619 608
Kat. 3 **Erste 2 Std.** **Jede weitere 8 Std.**	172 16	621 348	657 493	619 340

N.B.: nichtärztliche Leistung Kardio-/angiolgische Überwachungsstation: erste 2 Std. 82TP, dann 32TP pro Std., maximal 14 mal

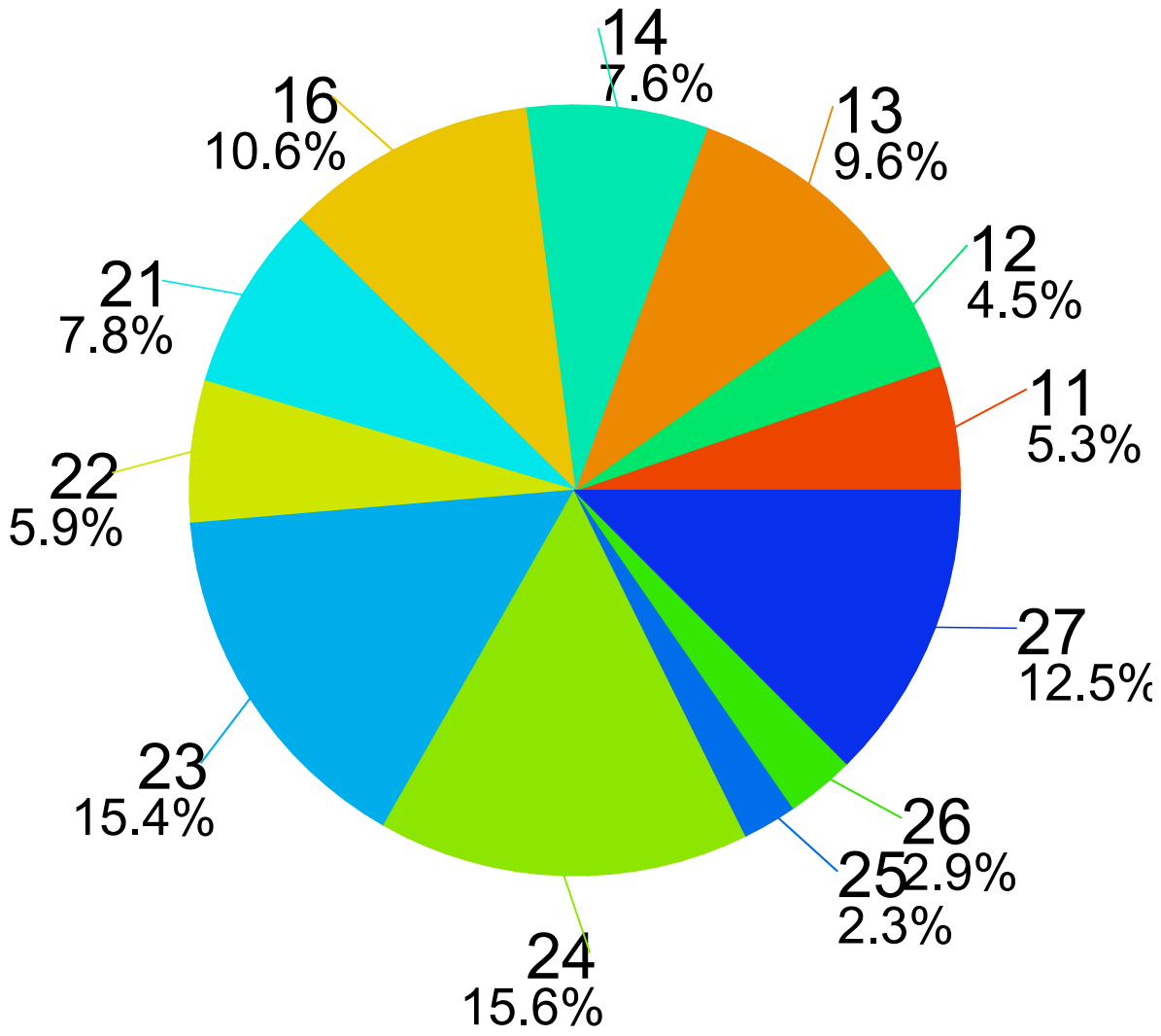
Kategoriewechsel jeweils bei Schichtwechsel

Swiss ICU's with SGI/SSMI-acknoweldgement

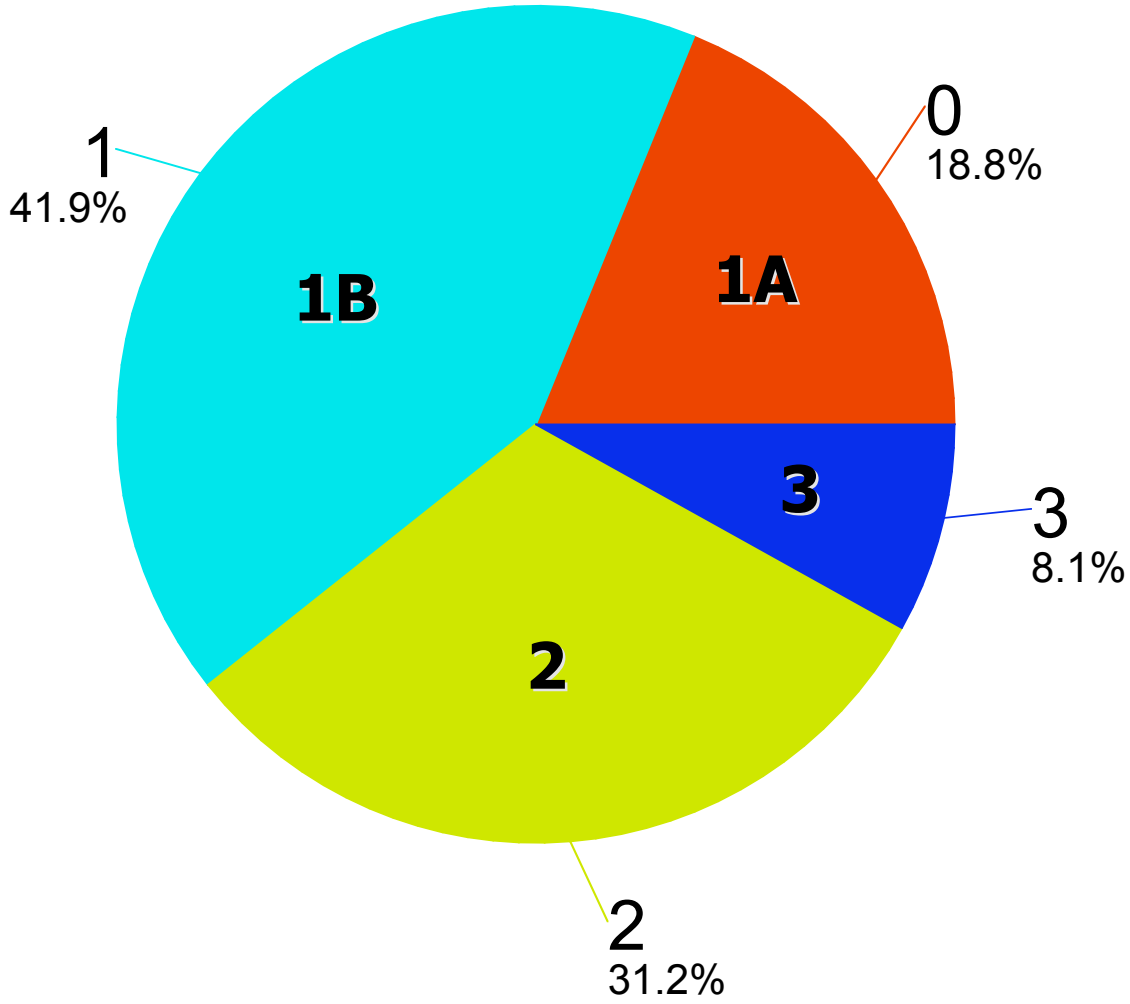


Situation 01.01.06
HU. Rothen

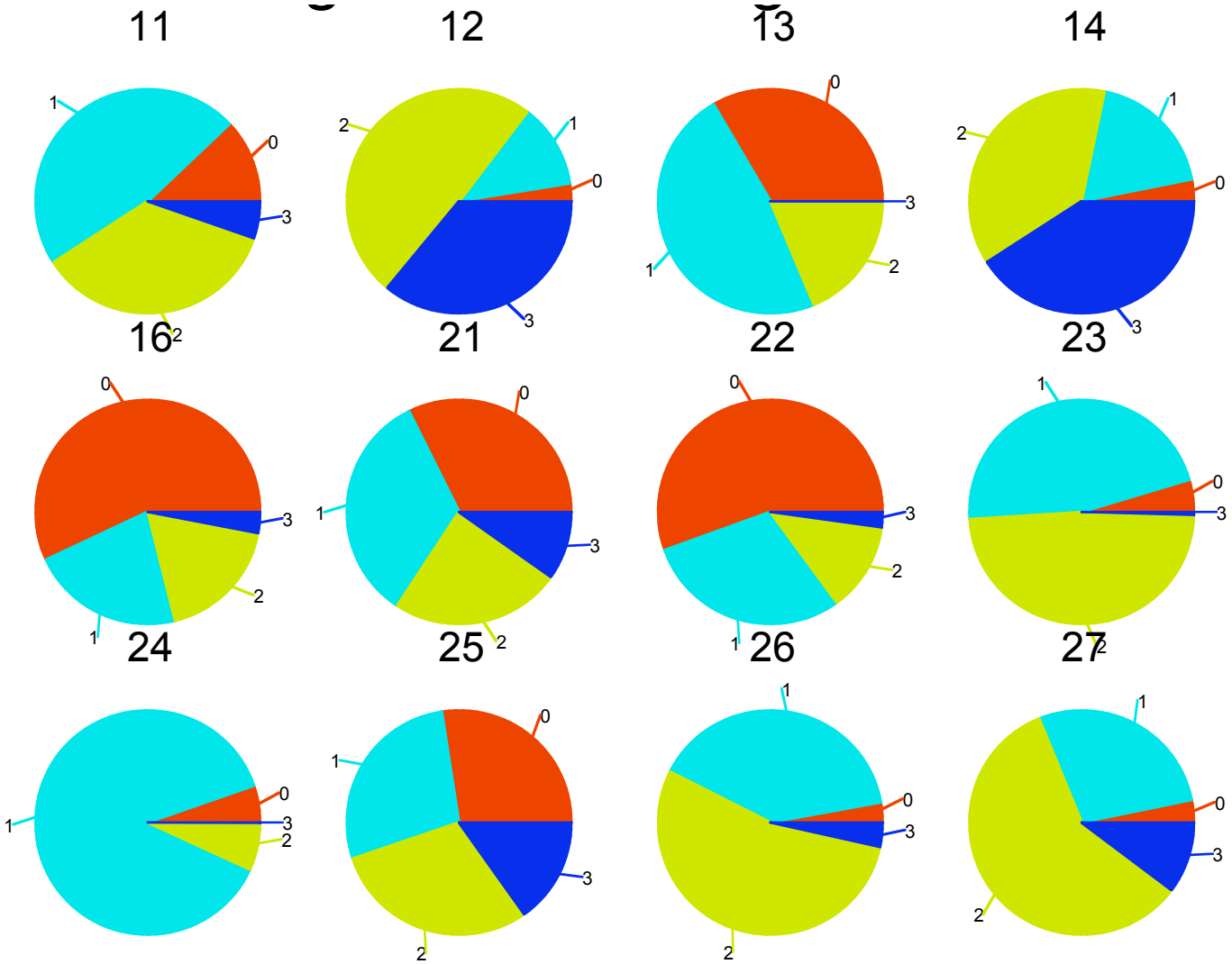
New calibration of SGI/SSMI-categories: participating units



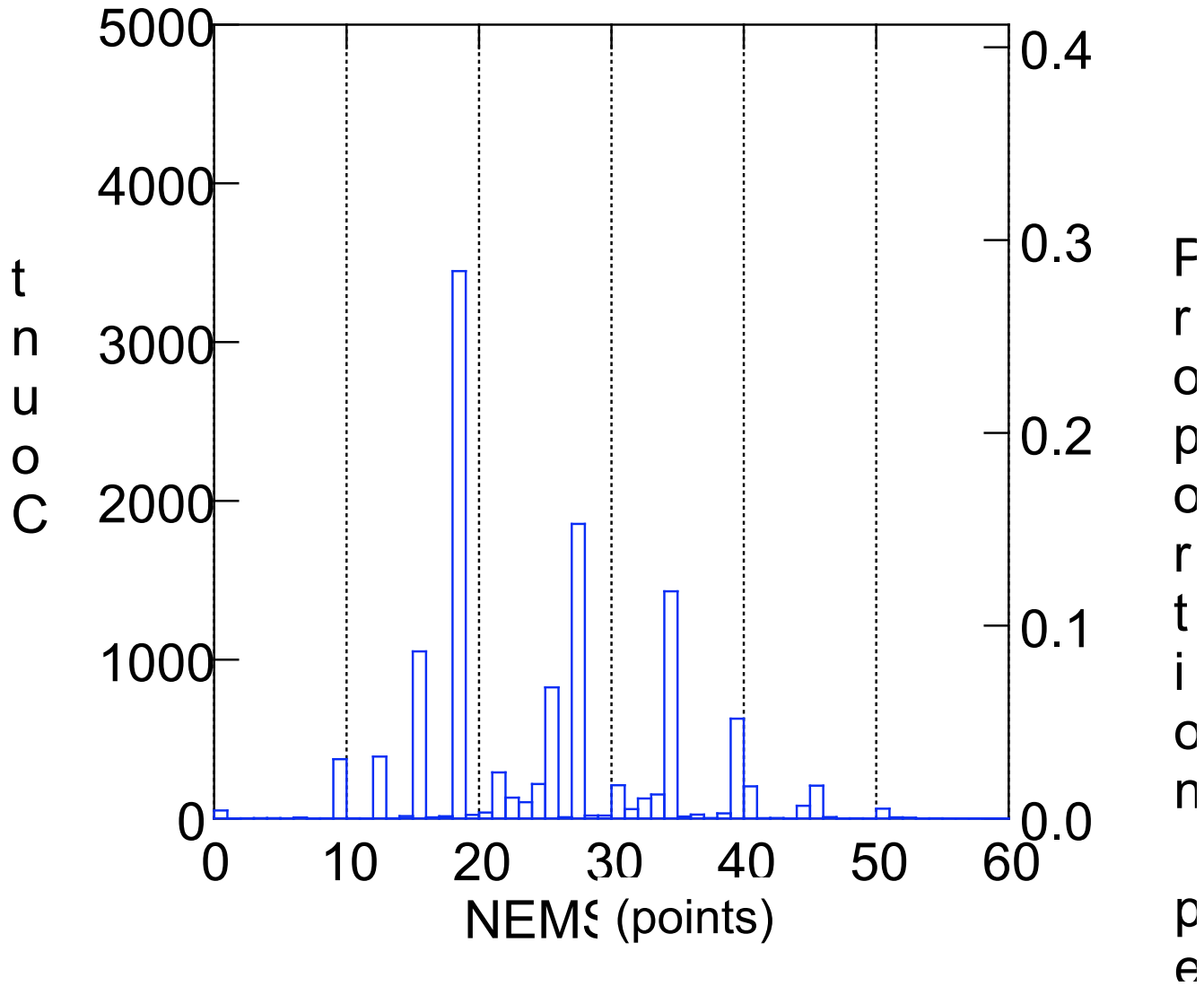
Distribution of SGI/SSMI-categories in participating units



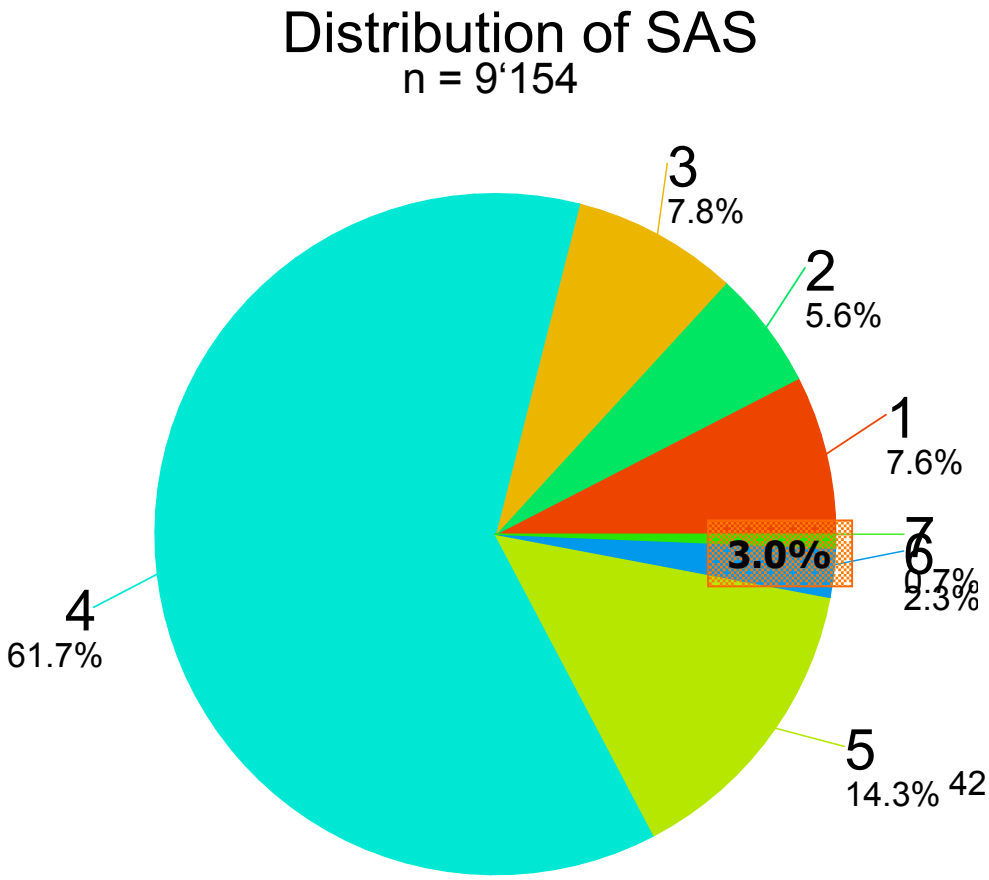
Distribution of SGI/SSMI-categories in participating units

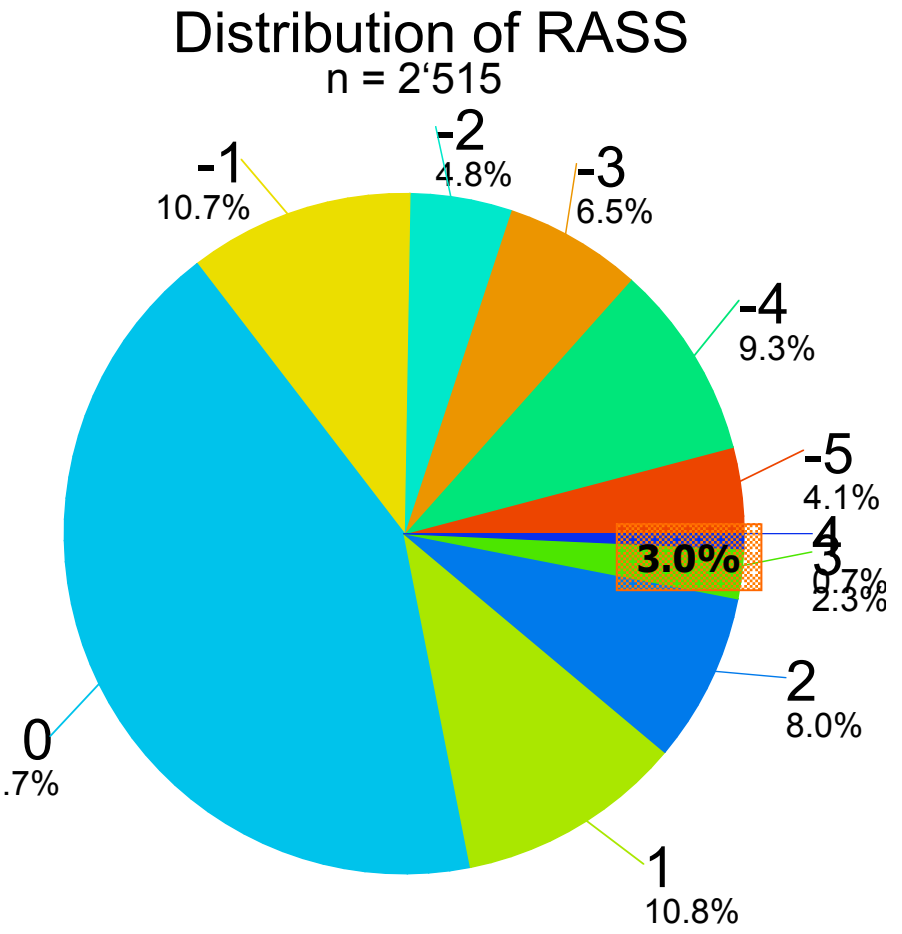


Distribution of NEMS in participating units



Distribution of SAS/RASS in participating units



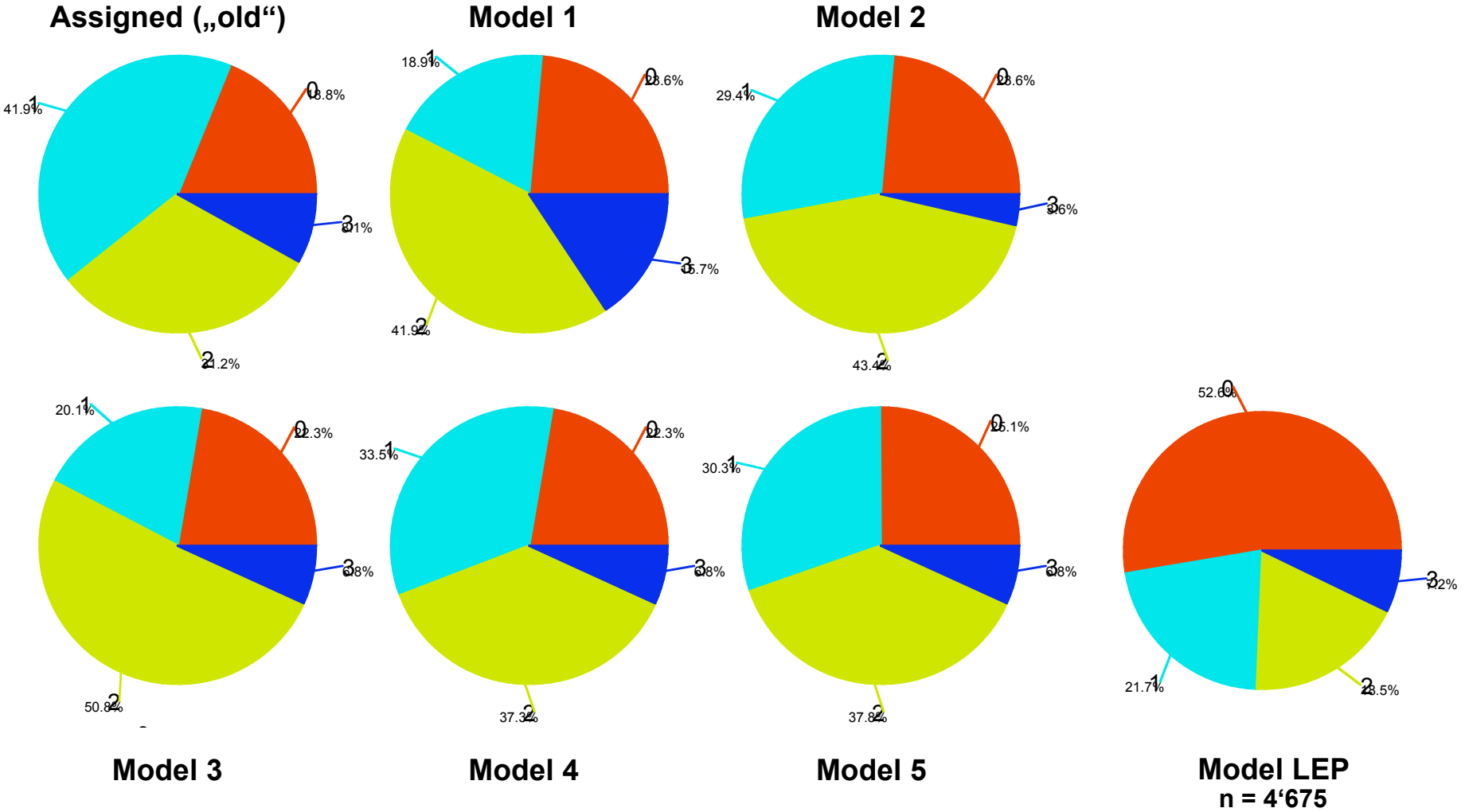


Definition of SGI/SSMI-categories using NEMS and SAS

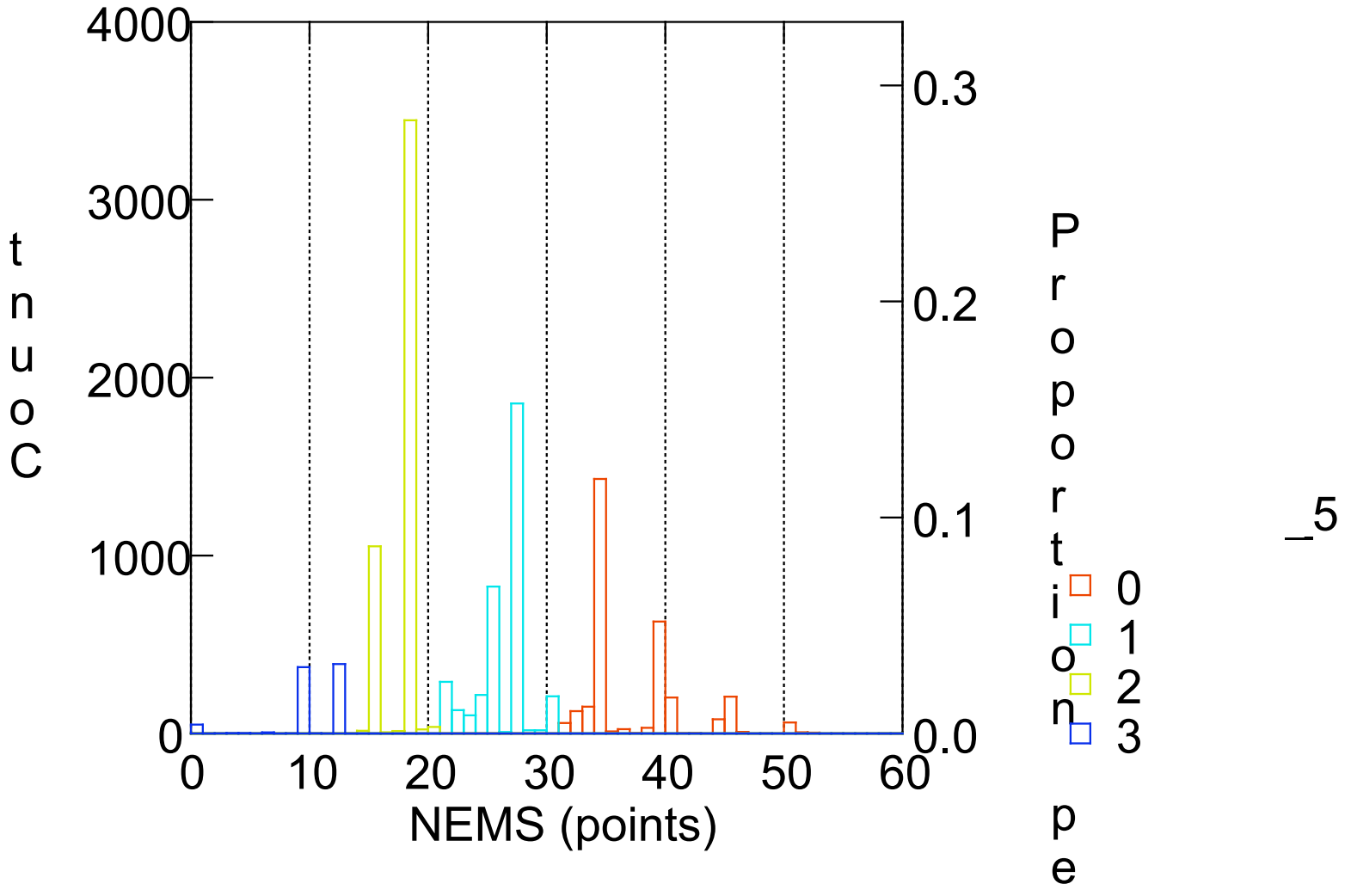
	SGI/SSMI-category			
Model	1A	1B	2	3
1 (NEMS)	>32 Pt.	26-32	17-25	0-16
2 (NEMS)	>32 Pt.	22-32	11-21	0-10
3 (NEMS)	>33 Pt.	27-33	13-26	0-12
4 (NEMS)	>33 Pt.	19-33	14-18	0-13
4_S (NEMS)	>33 Pt.	19-33	14-18	0-13
5 (NEMS)	>30 Pt.	21-30	13-20	0-12
5_S (NEMS)	>30 Pt.	21-30	13-20	0-12
6 (LEP)	>320 Min.	241-320	161-240	0-160
Euricus-1	>30		21-30	0-20

models 4_S and 5_S: category increased by 1 level if SAS > 5

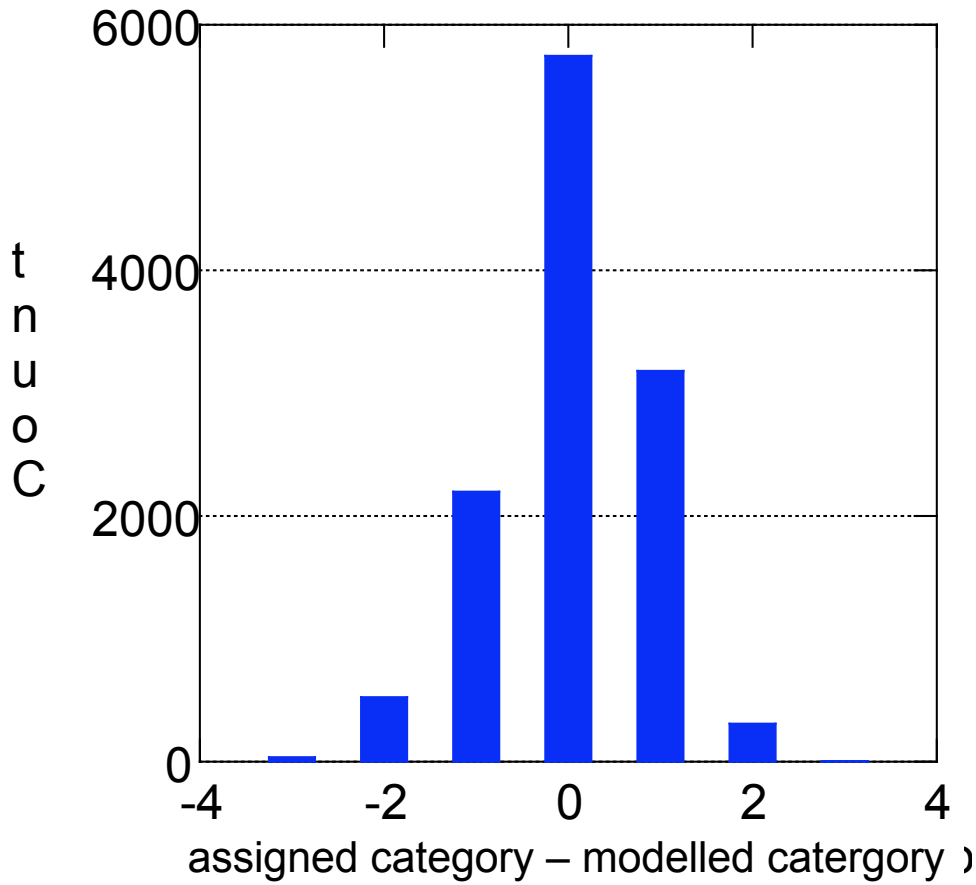
Definition of SGI/SSMI-categories using NEMS and SAS



SGI/SSMI-categories using model 5

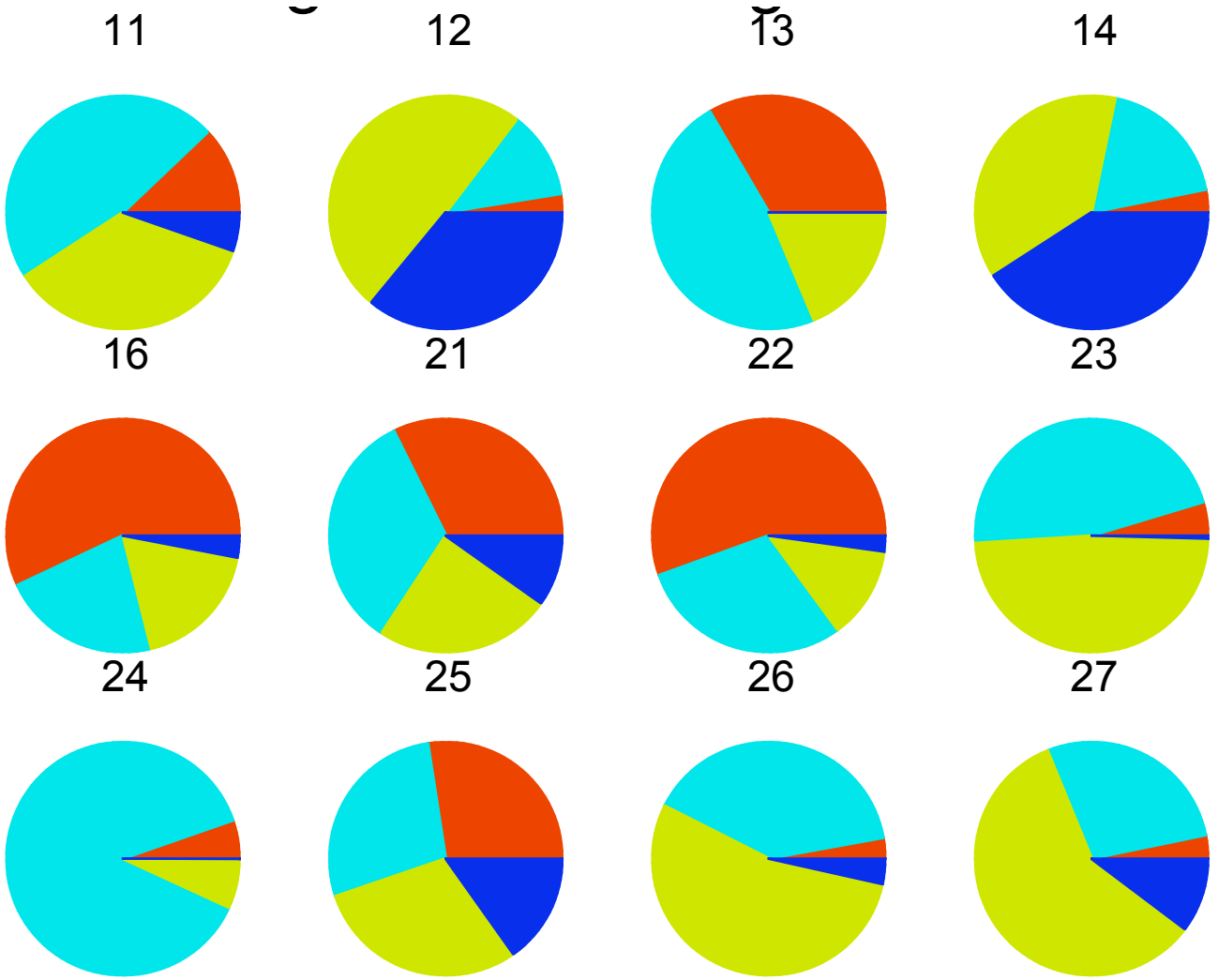


Change in SGI/SSMI-category „old“ vs. model 5 including SAS

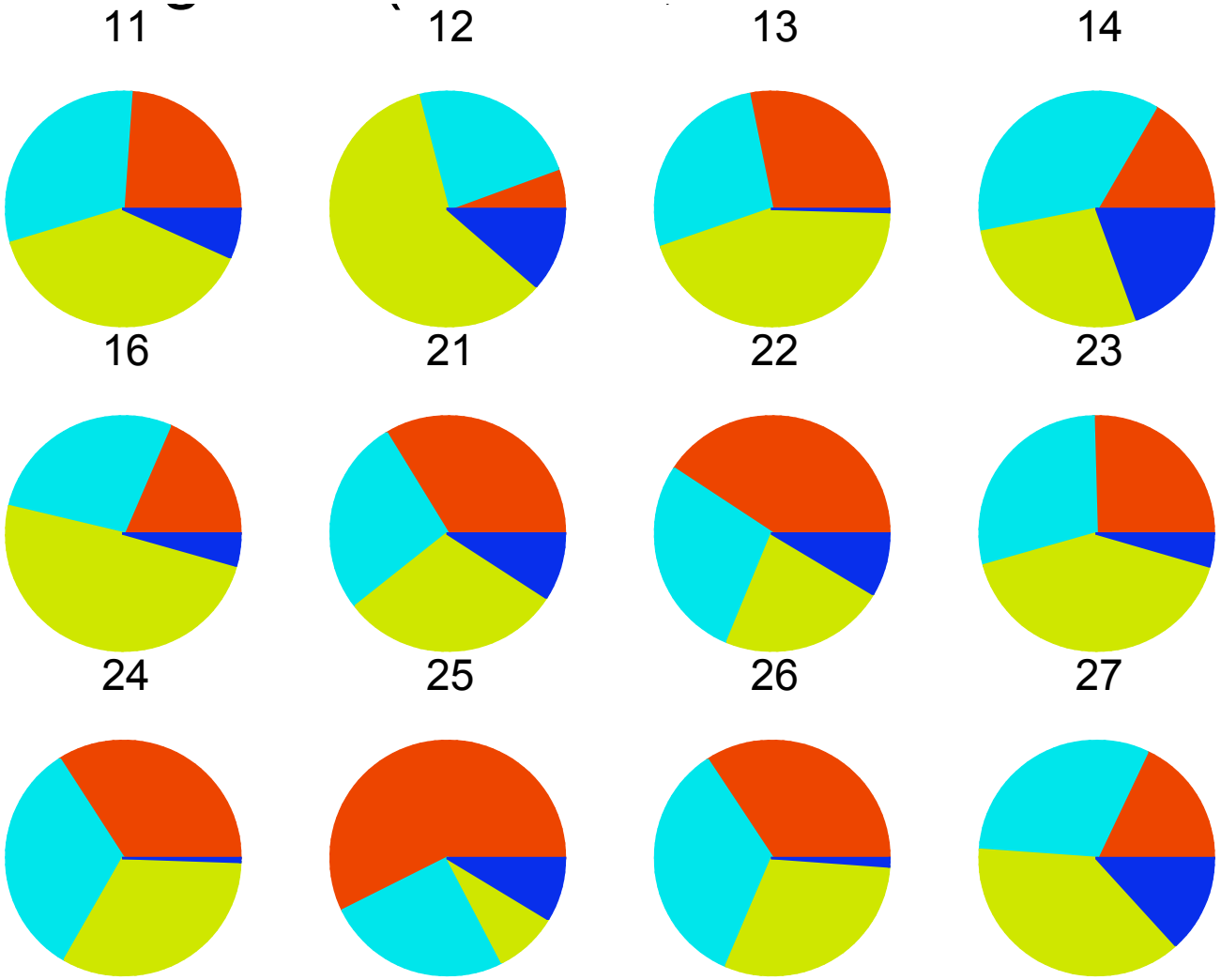


Note: negative number = modelled (“new”) category is lower

Distribution of SGI/SSMI-categories „old“



Distribution of SGI/SSMI-categories model 5 including SAS



Patient Scoring:
An uniform system for Switzerland?

- ☑ Common standard for Switzerland
- ☑ Common documentation of patient process and performance (KAI, KWFB, paritätische Kommission für WB in IP)
- ☑ Common language in MDSi (Quality managment, Benchmarking, etc.)
- ☑ Common base for reimbursement (SLK/TarMed/SwissDRG?)

- ☒ The actual used scoring system (SGI/SSMI-categories) is not very plausible, there is thus a risk of low credibility in the future
- ☒ Units using LEP or PRN would prefer not to add a further, new scoring system

Patient scoring (categorization) using NEMS and SAS/RASS

- ☑ NEMS and SAS can easily be collected with minimal amount of expenses
- ☑ NEMS and SAS form a common base for all users
- ☑ NEMS is well established in the general medical literature
- ☑ NEMS is validated as a tool to analyse the patient process in critical care
- ☑ NEMS may be used to calculate indicators for quality management
- ☑ NEMS allows for a direct, easy documentation of a few core competencies in critical care
- ☑ NEMS (and SAS) might serve as basis for an ICU-specific module in Swiss-DRG
- ☑ NEMS (and SAS) may have some limited use as tool in human resource management

Patient scoring (categorization) using NEMS and SAS/RASS

- Due to the small number of items included, there is limited resolution
- NEMS is not a tool for detailed assessment of nursing care
- If used without any further context, neither NEMS nor SAS will allow to estimate quality of care
- NEMS and SAS are not included in TarMed
- NEMS is in general used only once per 24 hours
- SAS/RASS have only recently been introduced
- The point of view of the patient is virtually missing

Patient scoring (categorization) using model 5_S

- ☑ Aims at an overall similar distribution of SGI-categories as acutally used („conventional" categorization)
- ☑ SAS is included based on a proposal by nurses
- ☑ Units using RASS may easily transform their data to SAS-equivalents
- ☑ Model 5_S shows plausible distribution of categories, both in non-university and in university ICUs

Patient scoring (categorization) using model 5_S

- Possibly might result in a small increase in the relative number of shifts with SGI-category 1A, and on the other hand a small decrease in SGI-category 3
- The share of category 1A/1B is high in comparison to EURICUS-1 (but is low in comparison to the LEP-model)
- The model needs further evaluation
  - Use in paediatric/neonatology ICU
  - Large-scale application

- Explore the future use of this model in intermediate care units
- Explore the use of this model (or NEMS) for Swiss-DRG

Patient scoring (categorization) using NEMS and SAS/RASS

- **The KPK proposes**
  to calculate SGI/SSMI-categories based on NEMS and SAS:
  - NEMS (nine equivalents of nursing manpower use score) contains nine elements, representing core competencies of critical care
  - SAS (sedation agitation scale) or RASS (Richmond agitation-sedation scale) is used to assess the patient‘s mental state

- Categories ar defined as follows

Category	NEMS (points)
1A	> 30
1B	21 – 30
2	13 – 20
3	0 – 12

  - If SAS > level 5, a given category is increased by 1 step. Note that category 1A can not be increased further.
- The MDSi-tool calculates the SGI/SSMI-categories based on this new algorithm since 01.01.06

Patient scoring (categorization) using NEMS and SAS

NEMS: Nine equivalents of nursing manpower use score

- Miranda D R at al. Nine equivalents of nursing manpower use score (NEMS).
  Intensive Care Med 1997, 23:760-765.
- Iapichino G et al. Description of trends in the course of illness of critically ill patients. Markers of intensive care organization and performance.
  Intensive Care Med 2002, 28:985-9.
- Hartmann B et al. Vollautomatische Kalkulation des Pflegeaufwandes auf einer Operativen Intensivstation. Ein Vergleich zwischen TISS-28 und NEMS.
  Intensivmed 2004, 41:94-8.

SAS: Sedation agitation scale

- Riker RR et al. Prospective evaluation of the Sedation-Agitation Scale for adult critically ill patients.
  Crit Care Med 1999, 27:1325-9
- Riker RR et al. Validating the Sedation-Agitation Scale with the Bispectral Index and Visual Analog Scale in adult ICU patients after cardiac surgery.
  Intensive Care Med 2001, 27:853-8
- Brandl KM et al. Confirming the reliability of the sedation-agitation scale administered by ICU nurses without experience in its use.
  Pharmacotherapy 2001, 21:431-6.