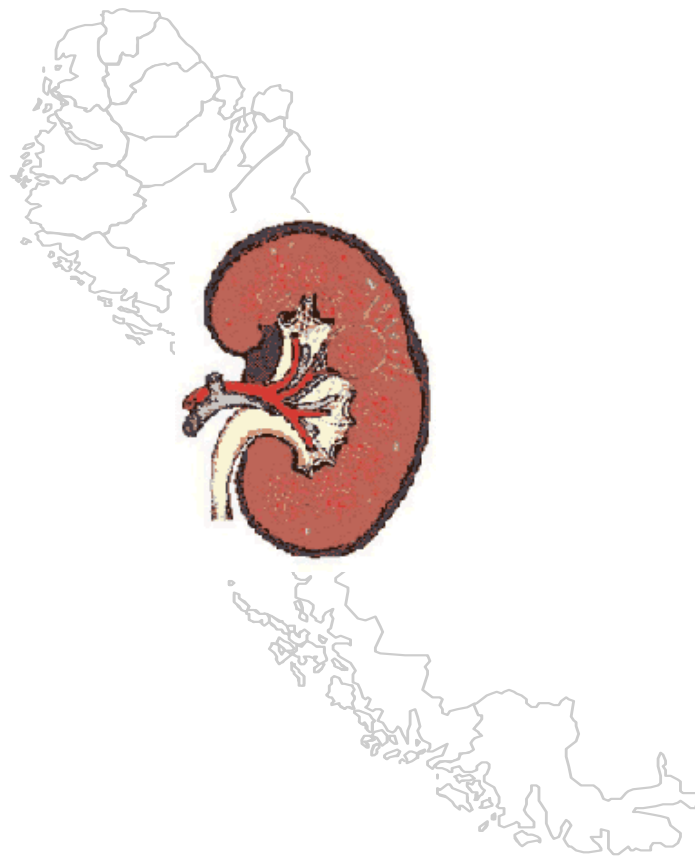


**The Norwegian Kidney Register/National Center in Nephropathology
Department of Medicine/Department of Pathology
Haukeland University Hospital**

ANNUAL REPORT

2007



Head of the board: Bjarne M. Iversen, professor MD PhD
Head of pathology: Leif Bostad, associate professor, MD

The Norwegian Kidney Register / National Center of Nephropathology

Annual report 2007

The Norwegian Kidney Register/ National Centre of Nephropathology have continued the work in line with previous years. The reports from different hospitals are received fairly regularly although there are delays and some reports are lacking.

The Norwegian Kidney Register has a total database of 9035 patients. It has become an advance tool to explore relationship between kidney disease combined with other abnormalities such as cancer, preeclampsia, overall mortality etc. Norwegian nephrologists and pathologist have a unique possibility to perform research that can only be performed in Norway as other countries are lacking the needed data.

Norwegian nephrologists have started collaboration where HUNT data will be combined with data from the Norwegian Kidney Register. There is still room for more participants. Morphological research is still lacking in the registry and collaboration between renal pathologists is a "must" for the future.

In Norway a total of 471 renal biopsies have been performed in 2007. The numbers of renal biopsies per 100000 inhabitants are ranging from 5.4 to 12.3; Region Vest is still the regions where renal biopsies are performed most frequently.

As seen on page 5, there are still some lacking clinical reports from different hospitals, although the overall numbers of report are good. A greater numbers of morphological data are missing and still morphological data are not send to the register. We have discussed that more pathologists should work together and hopefully we can come back to that this year. We are happy with the task performed by the nephrologists as the clinical data has been most valuable in the research performed the last years. Hopefully this work will be continued in the future.

This report will this year be send to all pathologists working with interest in renal morphology and hopefully this will increase the interest for renal biopsies and renal pathological research.

The number of renal biopsies with representative material is very high and overall the size and number of glomeruli in each biopsy is at a level where a correct diagnosis can be made. From the departments which we only receive sections, the number of morphological slides are a bit too limited.

Benign nephrosclerosis is still the most common type of disease in the registry and the last year more than 40 % of our patients had this disease as their main diagnosis or together with other types of renal disease. The high frequency of this diagnosis reflects probably the major interest of hypertension among nephrologists.

Research

Bjørn Egil Vikse is still working on the relation between pregnancies and later renal disease and he has shown that preclamsia is a substantial risk for developing ESRF. At the moment a new research fellow, Miriam Sandvik is working on patients with diabetes mellitus, preeclamsia and later ESRF and

Camilla Tøndel is studying Fabry disease and diseases in the children.

Rune Bjørneklett is still working with nephritic syndrome and Knut AAsarød is working on a clinical project with SLE.

The present report has been performed mainly by Else Reimers, the secretary of the Norwegian Kidney Register. We are grateful for her skilled collaboration.

Sincerely yours

.....
Leif Bostad
Associate professor, MD

.....
Bjarne M. Iversen
Professor MD.PhD

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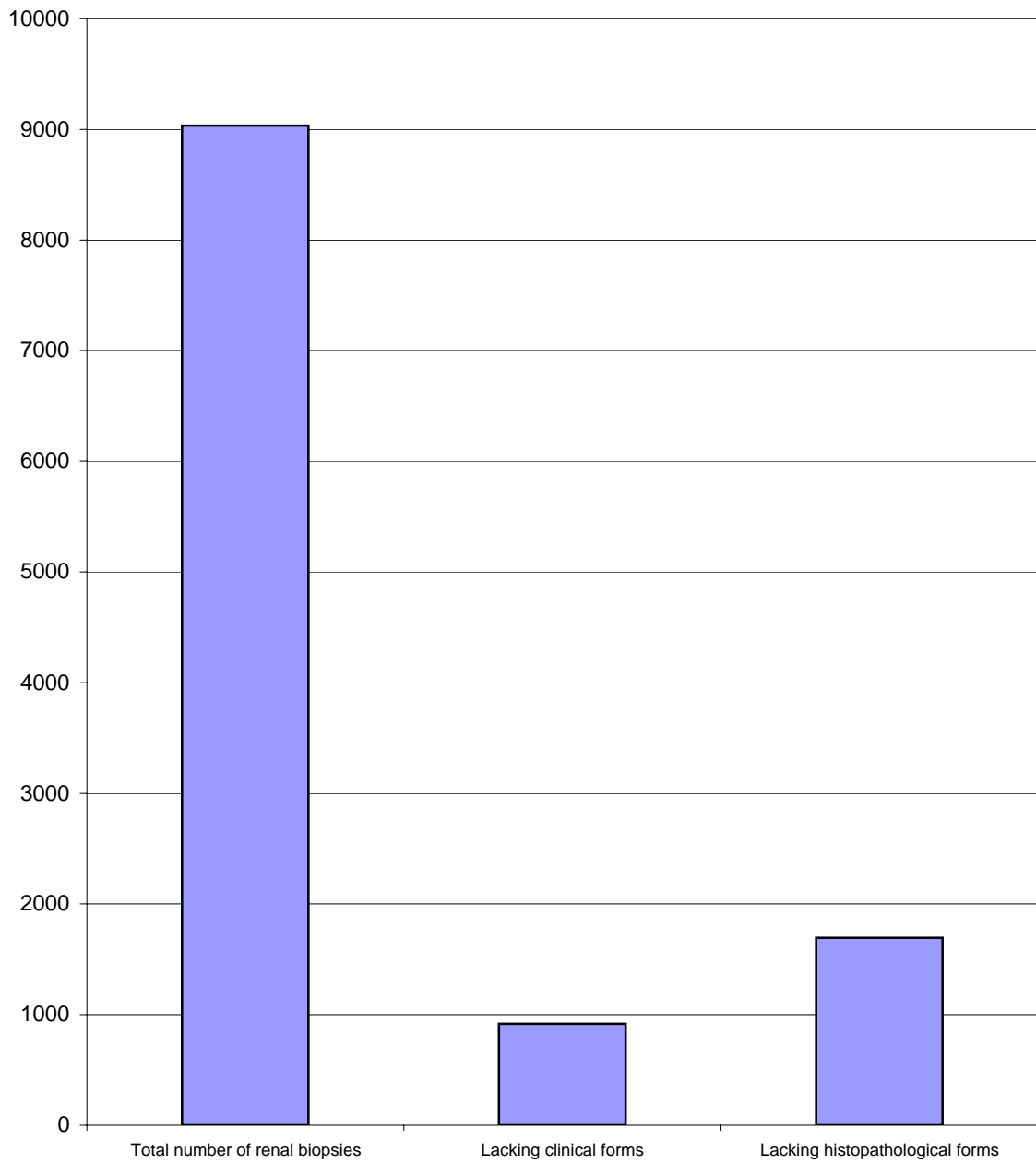
I Clinical

		Number	Number in %
	Total number of renal biopsies	471	
	Biopsies lacking clinical form	108	22,9
Diagnosis	Hematuria	159	43,8
	Hematuria with protenuria <3g/24h	15	4,1
	Nefrotic syndrom with proteinuria >3g/24h	8	2,2
	Chronical renal failure	116	32,0
	Hypertension BP >140/90	70	19,3
	SLE	11	3,0
	Creatinine > 200	123	33,9
	Creatinine < 200	234	64,5
Complications	Non complications	317	90,8
	Macroscopical hematuria	4	1,1
	Haematoma	22	6,3
	Blood transfusion	3	0,9
	Surgical intervention	3	0,9

II Morphology

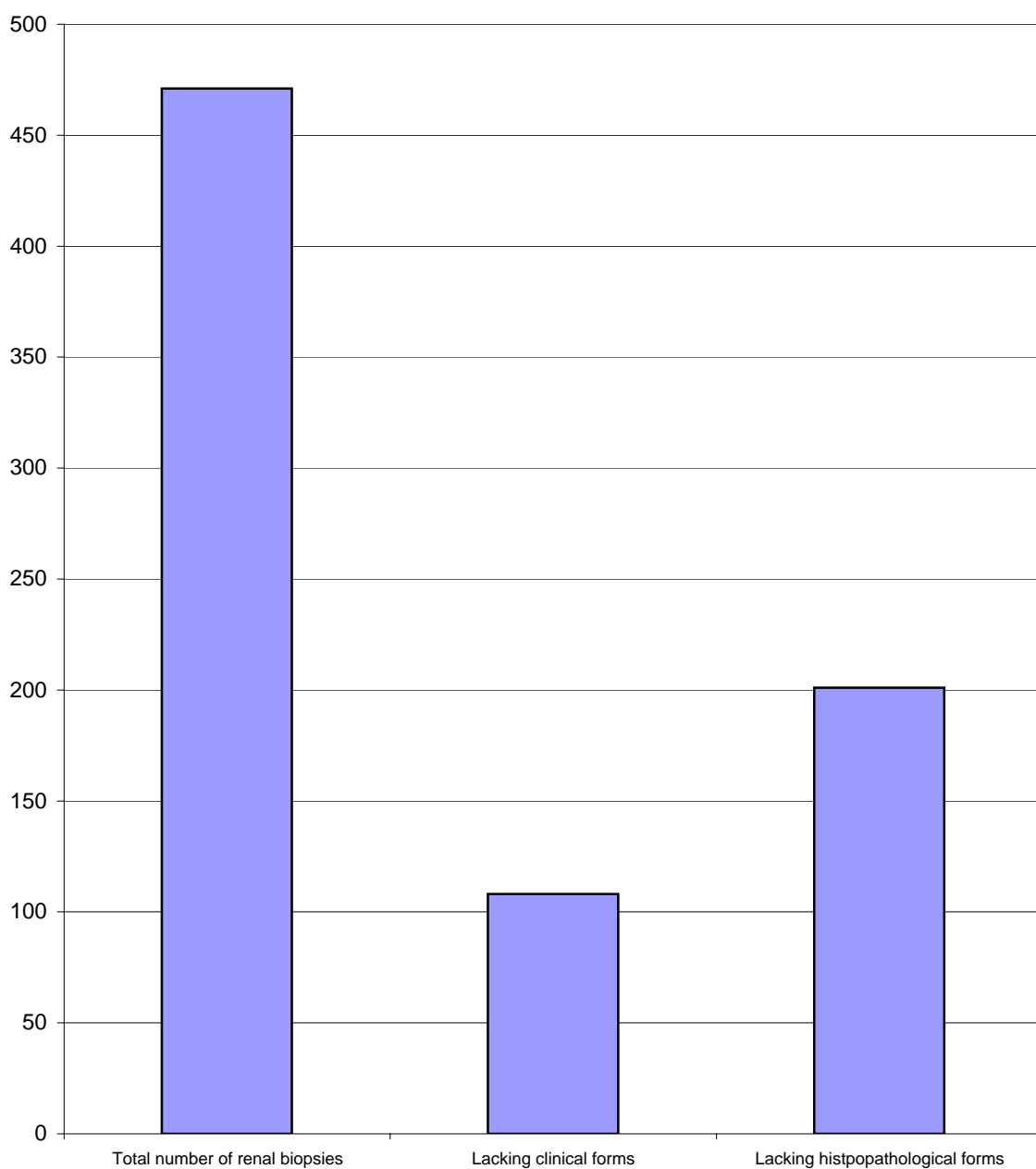
	Total number of renal biopsies	471	
	Biopsies lacking histopathological form	201	42,7
Quality of biopsies	Register pathologist: sufficient material	107	93,9
	Register pathologist: not sufficient material	7	6,1
	Local pathologist: sufficient material	238	97,1
	Local pathologist: not sufficient material	7	2,9
Diagnosis	Minimal change	11	4,1
	Membranoproliferative GN	5	1,9
	Focal segmental sclerosis	16	5,9
	Benign nephrosclerosis	110	40,7
	Malign nephrosclerosis	2	0,7
	Membranous GN	22	8,1
	Mesangioproliferative GN	70	25,9
	Mesangioproliferative GN with IgA	38	14,1
	Mesangioproliferativ GN without IgA	30	11,1
	Mesangioproliferative GN with SLE	0	0,0
	Endocap proliferative GN	4	1,5
	Cresentic GN	9	3,3
	Diabetic nephropathy	19	7,0
	Amyloidosis	2	0,7
	Diffus prol.Lupusnephritis(IV)	3	1,1
	Congenital nephropathy	8	3,0
	Monoclonal Ig deposition disease	5	1,9
	Cryoglobulinemia with GN	0	0,0

Total number of biopsies in The Norwegian Kidney Register



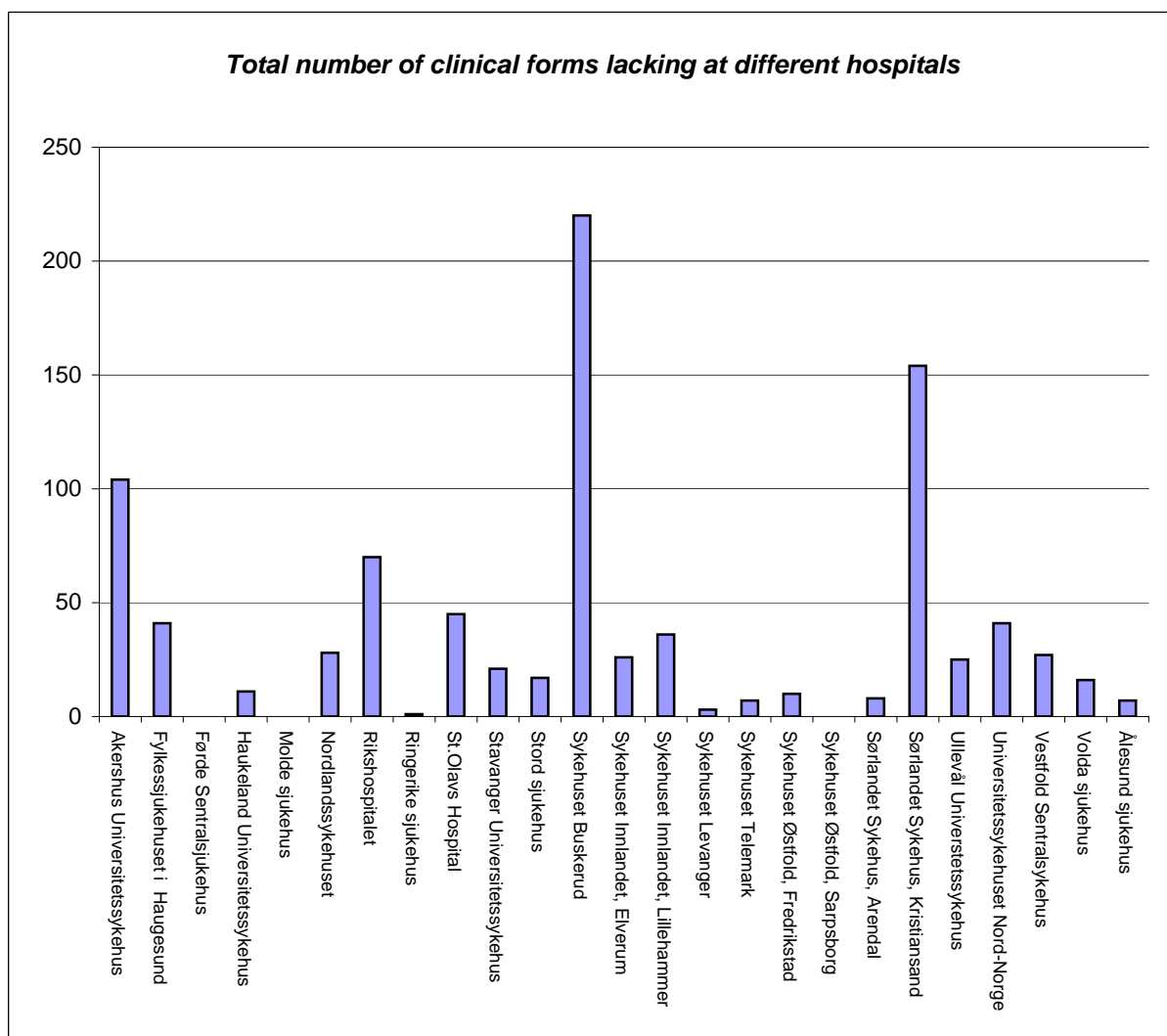
Total number of renal biopsies	9035
Lacking clinical forms	918
Lacking histopathological forms	1695

Number of renal biopsies 2007



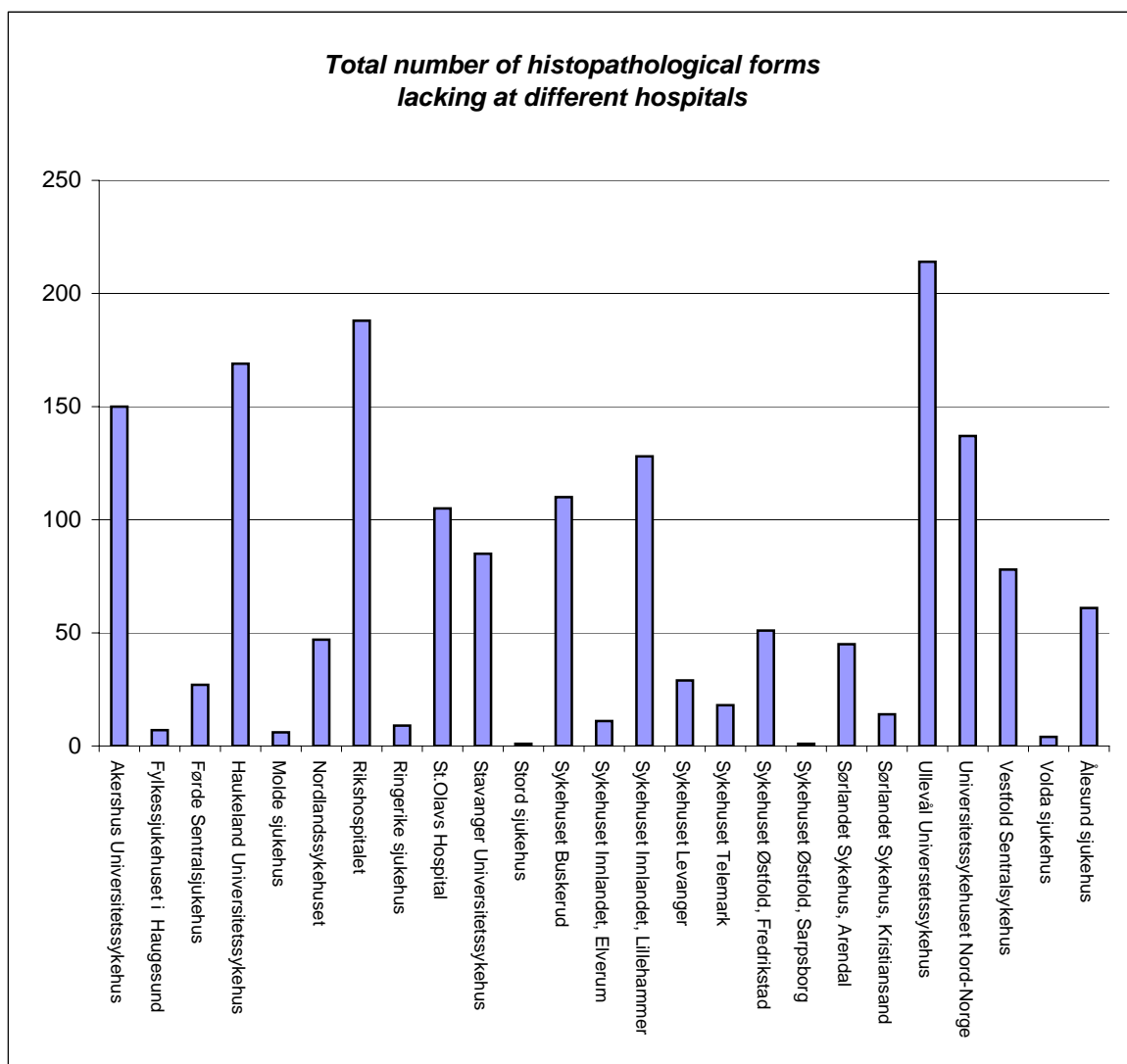
Total number of renal biopsies	471
Lacking clinical forms	108
Lacking histopathological forms	201

Total number of clinical forms lacking at different hospitals



Hospital	Number
Akershus Universitetssykehus	104
Fylkessjukehuset i Haugesund	41
Førde Sentralsjukehus	0
Haukeland Universitetssykehus	11
Molde sjukehus	0
Nordlandssykehuset	28
Rikshospitalet	70
Ringerike sjukehus	1
St.Olavs Hospital	45
Stavanger Universitetssykehus	21
Stord sjukehus	17
Sykehuset Buskerud	220
Sykehuset Innlandet, Elverum	26
Sykehuset Innlandet, Lillehammer	36
Sykehuset Levanger	3
Sykehuset Telemark	7
Sykehuset Østfold, Fredrikstad	10
Sykehuset Østfold, Sarpsborg	0
Sørlandet Sykehus, Arendal	8
Sørlandet Sykehus, Kristiansand	154
Ullevål Universtetssykehus	25
Universitetssykehuset Nord-Norge	41
Vestfold Sentralsykehus	27
Volda sjukehus	16
Ålesund sjukehus	7
Total	918

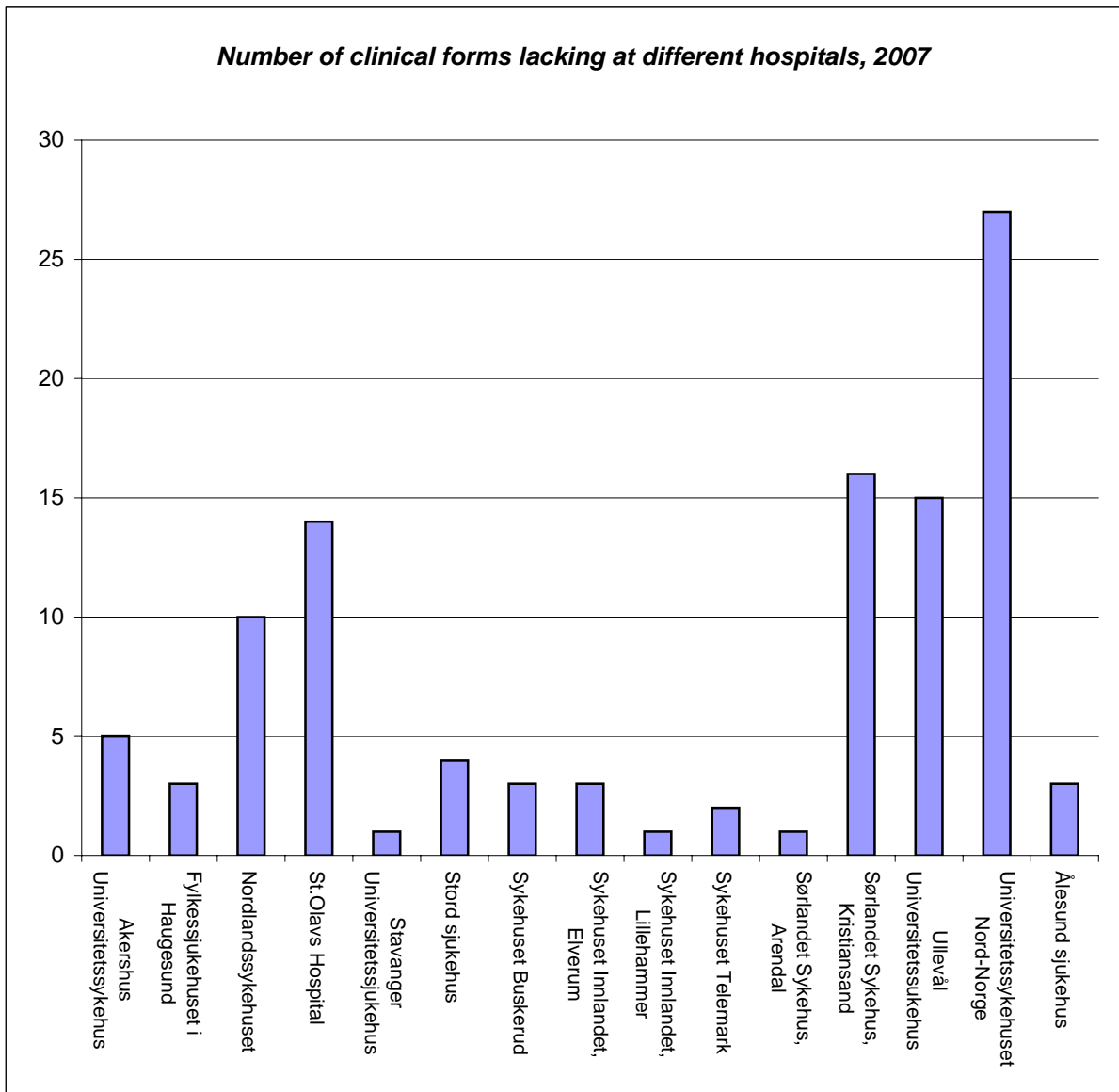
**Total number of histopathological forms
lacking at different hospitals**



Hospital	Number
Akershus Universitetssykehus	150
Fylkessjukehuset i Haugesund	7
Førde Sentralsjukehus	27
Haukeland Universitetssykehus	169
Molde sjukehus	6
Nordlandssykehuset	47
Rikshospitalet	188
Ringerike sjukehus	9
St.Olavs Hospital	105
Stavanger Universitetssykehus	85
Stord sjukehus	1
Sykehuset Buskerud	110
Sykehuset Innlandet, Elverum	11
Sykehuset Innlandet, Lillehammer	128
Sykehuset Levanger	29
Sykehuset Telemark	18
Sykehuset Østfold, Fredrikstad	51
Sykehuset Østfold, Sarpsborg	1
Sørlandet Sykehus, Arendal	45
Sørlandet Sykehus, Kristiansand	14
Ullevål Universtetssykehus	214
Universitetssykehuset Nord-Norge	137
Vestfold Sentralsykehus	78
Volda sjukehus	4
Ålesund sjukehus	61

Total 1695

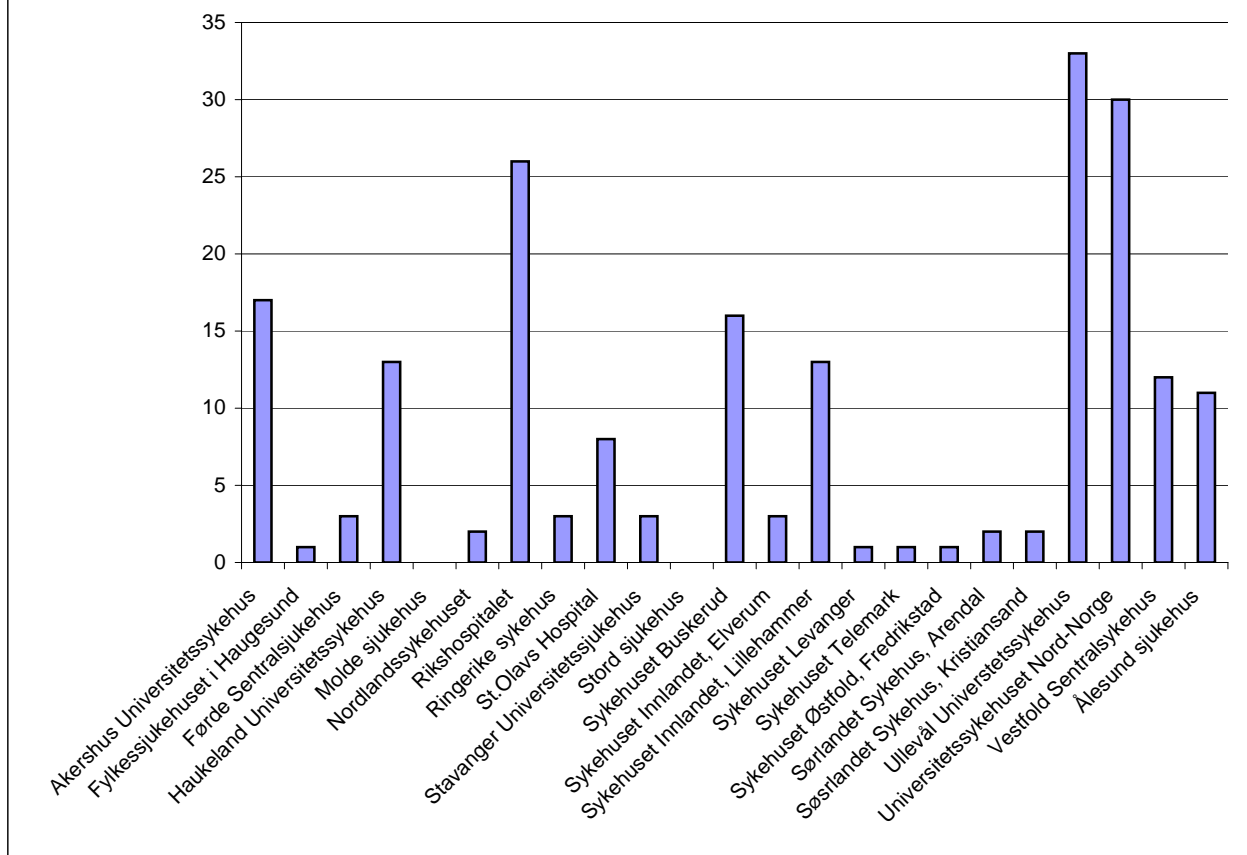
Number of clinical forms lacking at different hospitals, 2007



Total **108**

Hospital	Number
Akershus Universitetssykehus	5
Fylkessykehuset i Haugesund	3
Nordlandssykehuset	10
St.Olavs Hospital	14
Stavanger Universitetssykehus	1
Stord sjukehus	4
Sykehuset Buskerud	3
Sykehuset Innlandet, Elverum	3
Sykehuset Innlandet, Lillehammer	1
Sykehuset Telemark	2
Sørlandet Sykehus, Arendal	1
Sørlandet Sykehus, Kristiansand	16
Ullevål Universitetssykehus	15
Universitetssykehuset Nord-Norge	27
Ålesund sjukehus	3

Number of histopathological forms lacking at different hospitals, 2007



Total

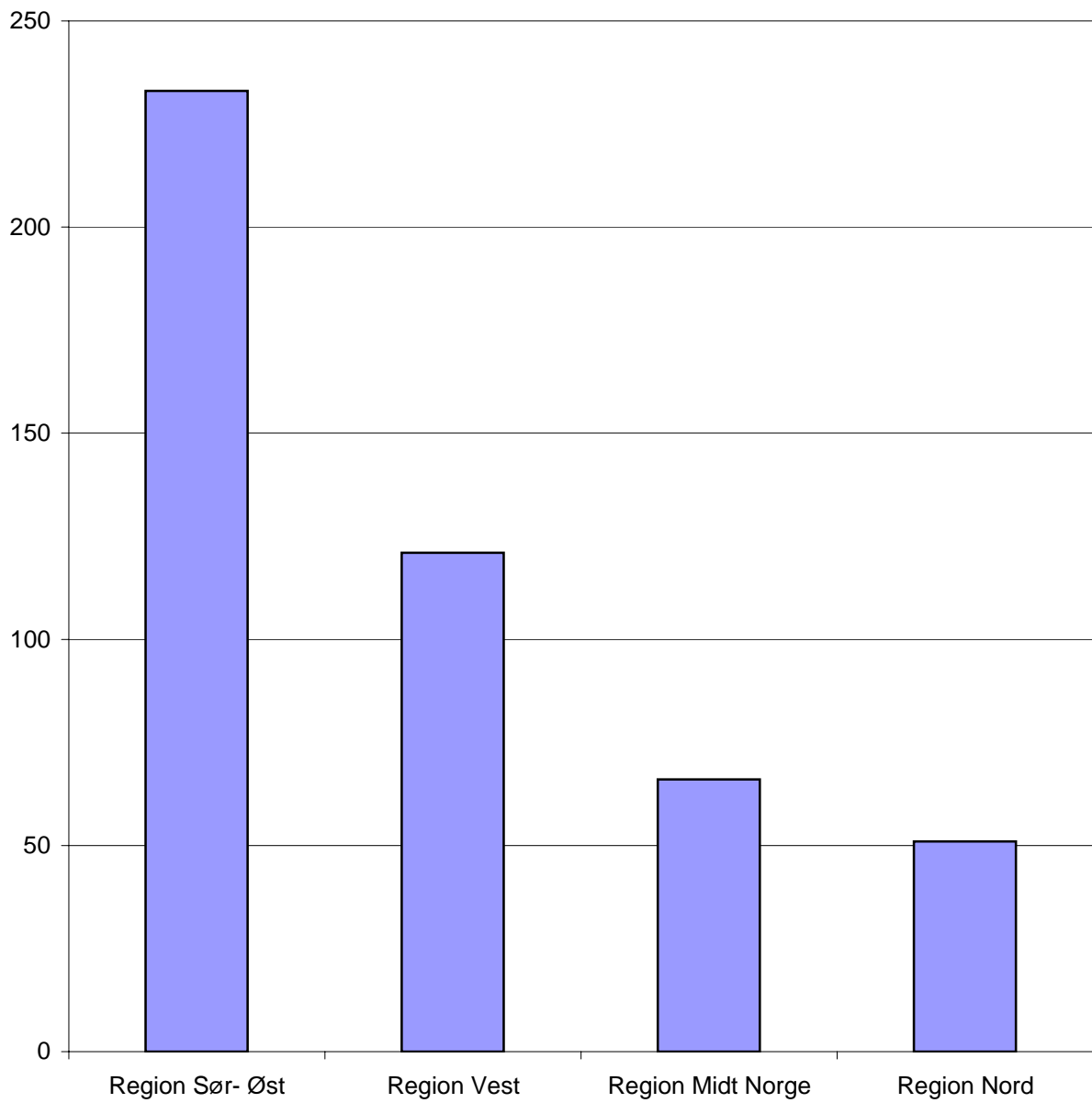
201

Hospital

Number

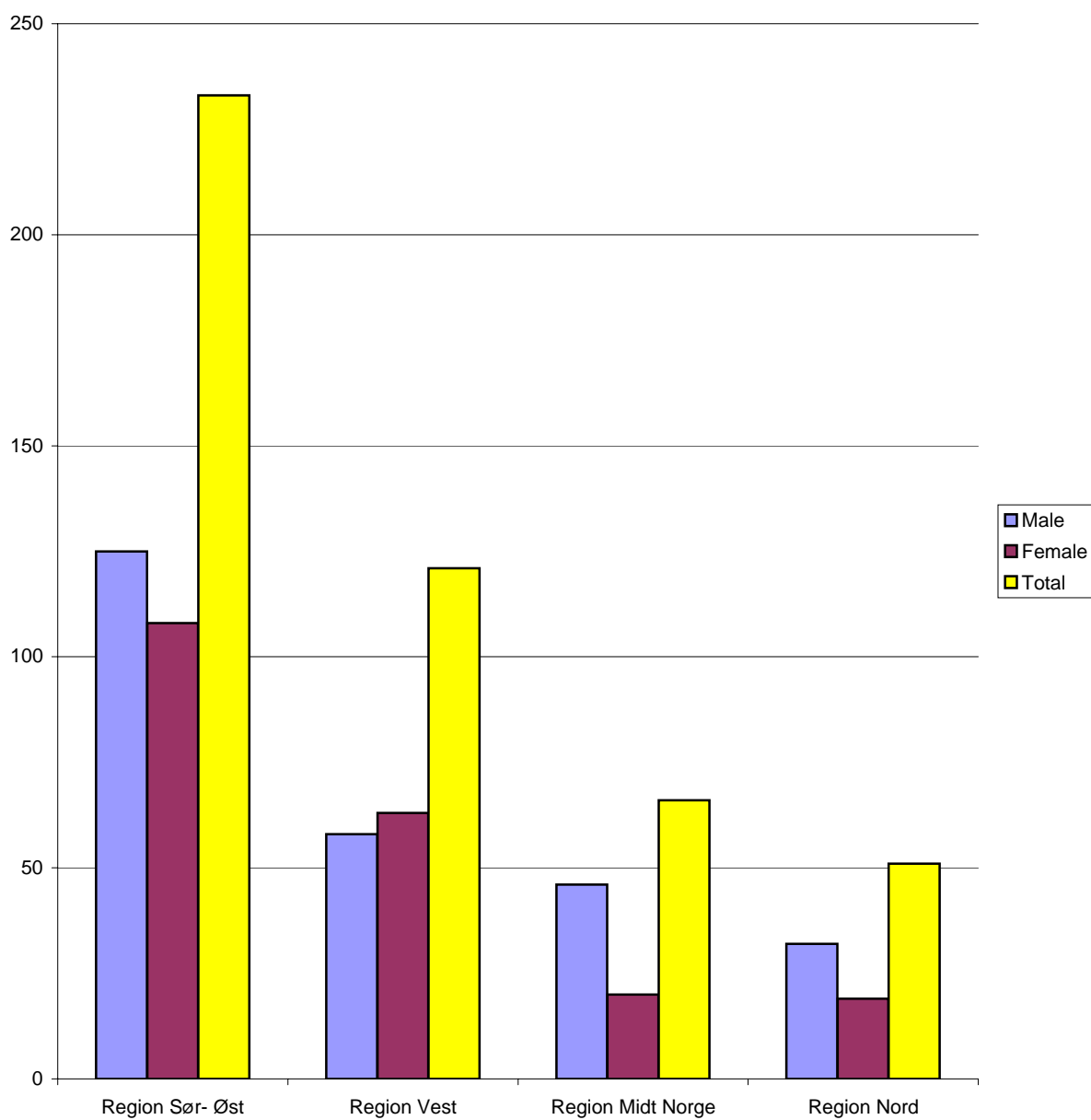
Akershus Universitetssykehus	17
Fylkessjukehuset i Haugesund	1
Førde Sentralsjukehus	3
Haukeland Universitetssykehus	13
Molde sjukehus	0
Nordlandssykehuset	2
Rikshospitalet	26
Ringerike sykehus	3
St.Olavs Hospital	8
Stavanger Universitetssjukehus	3
Stord sjukehus	0
Sykehuset Buskerud	16
Sykehuset Innlandet, Elverum	3
Sykehuset Innlandet, Lillehammer	13
Sykehuset Levanger	1
Sykehuset Telemark	1
Sykehuset Østfold, Fredrikstad	1
Sørlandet Sykehus, Arendal	2
Sørlandet Sykehus, Kristiansand	2
Ullevål Universtetssykehus	33
Universitetssykehuset Nord-Norge	30
Vestfold Sentralsykehus	12
Ålesund sjukehus	11

Renal biopsies in different regions, 2007



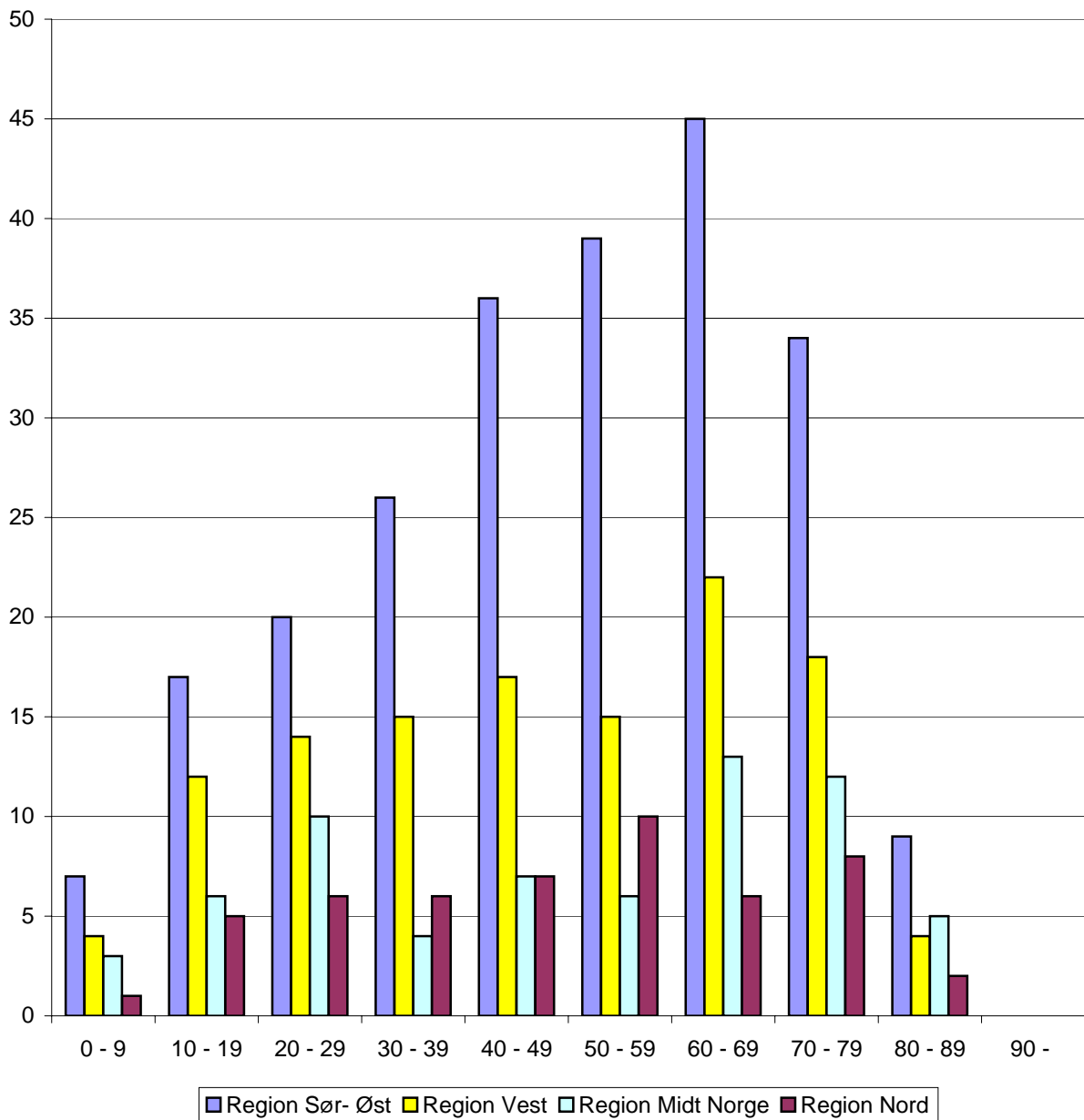
Region	Number
Region Sør- Øst	233
Region Vest	121
Region Midt Norge	66
Region Nord	51

Renal biopsies in different regions, male and female, 2007

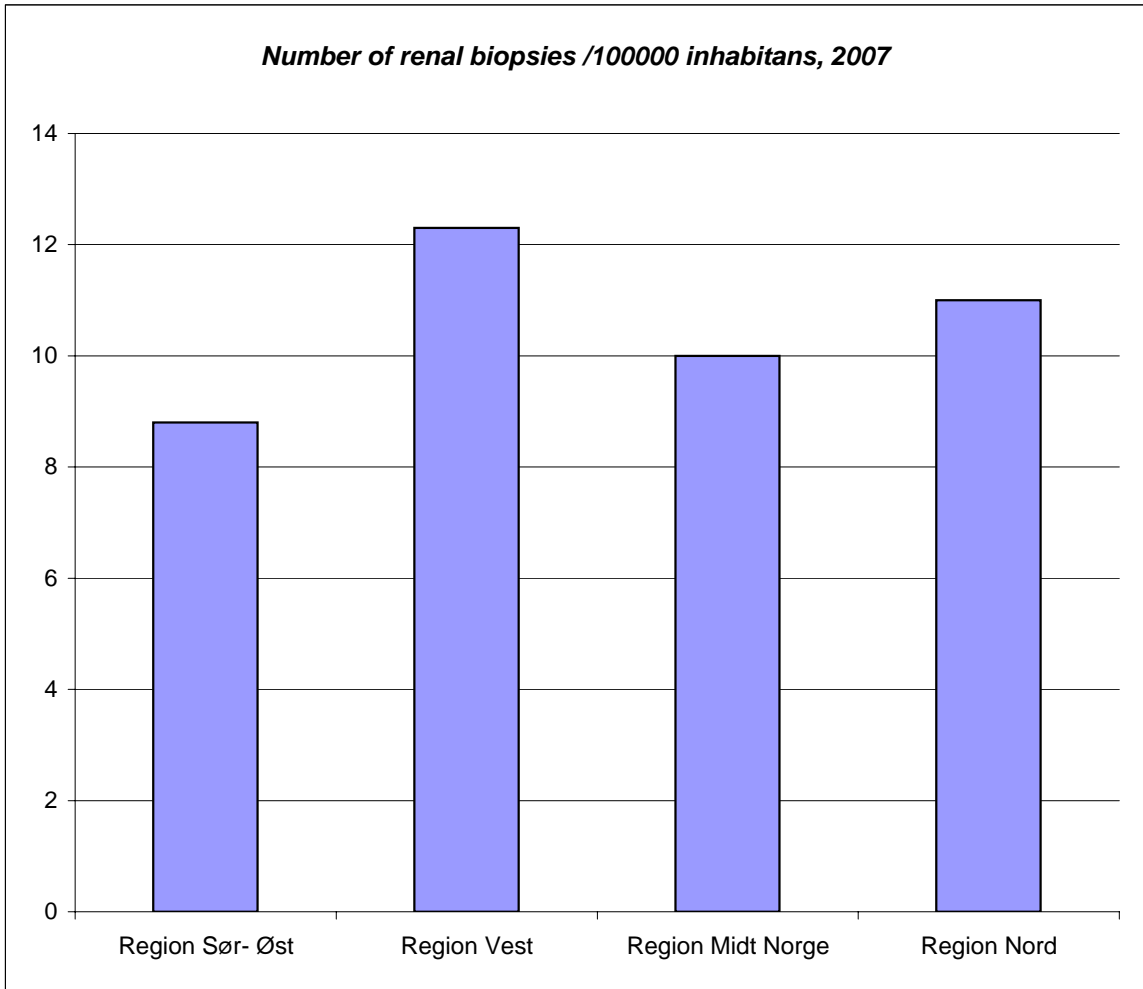


Region	Male	Female	Total
Region Sør- Øst	125	108	233
Region Vest	58	63	121
Region Midt Norge	46	20	66
Region Nord	32	19	51
Total	261	210	471

Patient age and regions, 2007

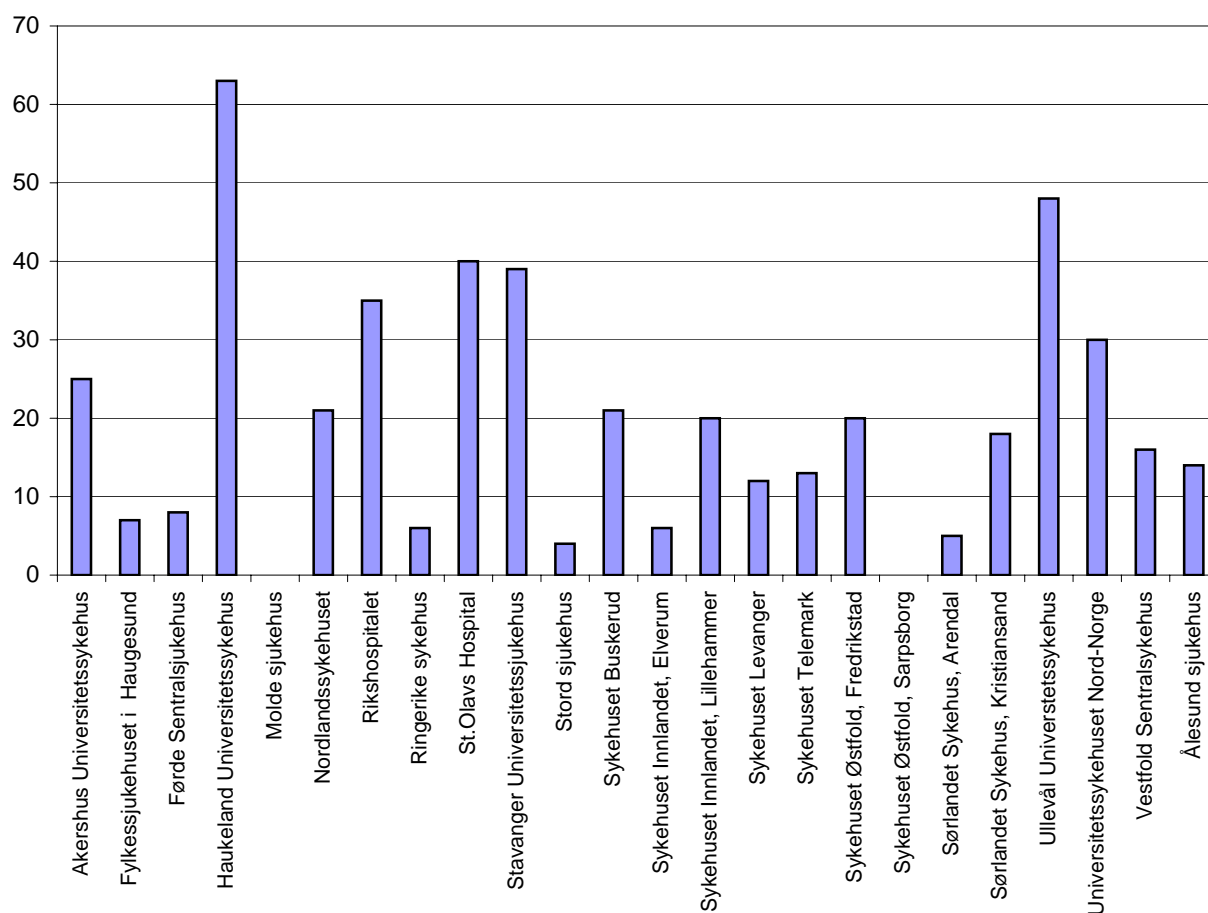


Age	Region Sør-Øst	Region Vest	Region Midt Norge	Region Nord
0 - 9	7	4	3	1
10 - 19	17	12	6	5
20 - 29	20	14	10	6
30 - 39	26	15	4	6
40 - 49	36	17	7	7
50 - 59	39	15	6	10
60 - 69	45	22	13	6
70 - 79	34	18	12	8
80 - 89	9	4	5	2
90 -	0	0	0	0



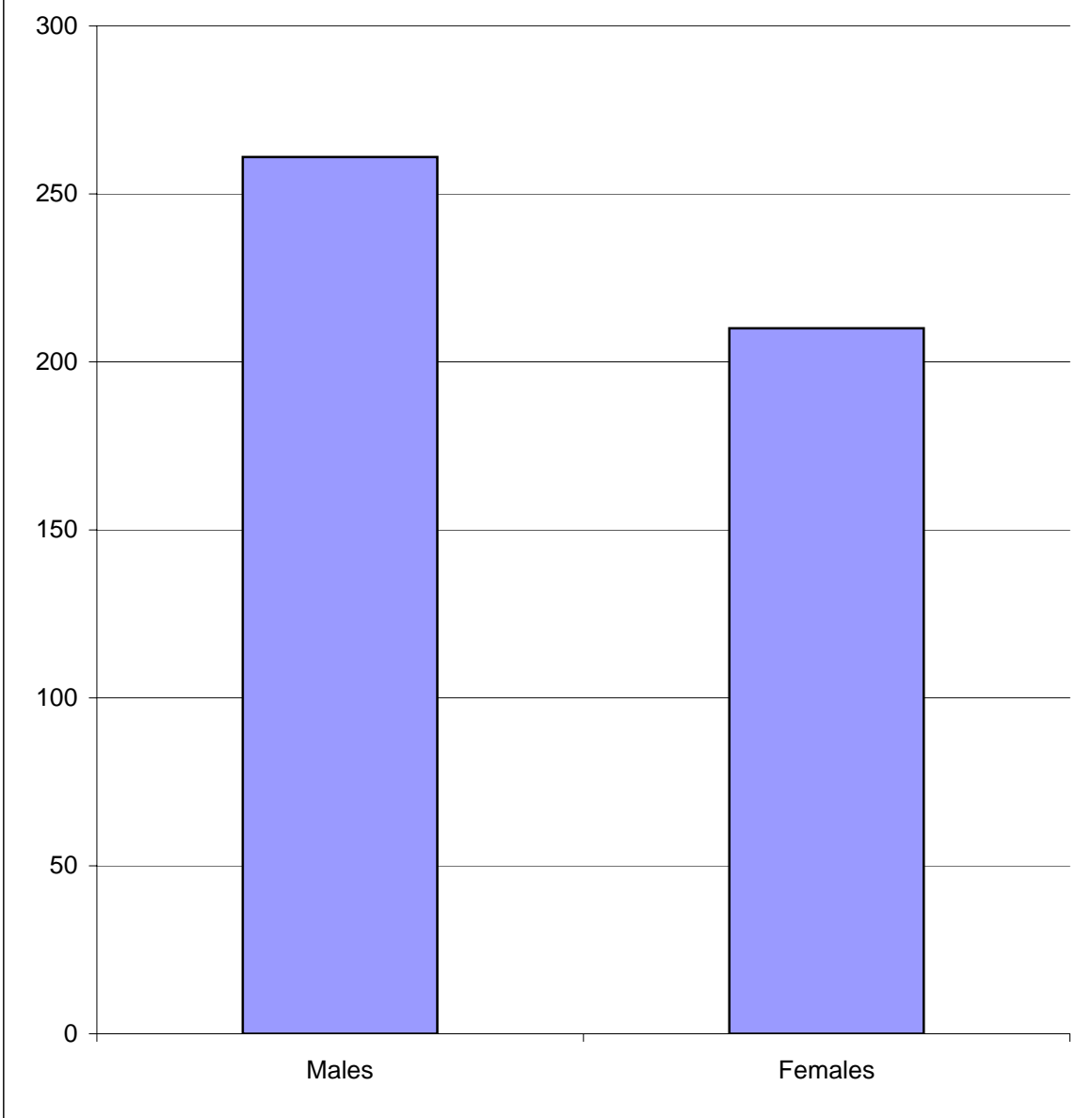
Region	Number
Region Sør- Øst	8,8
Region Vest	12,3
Region Midt Norge	10
Region Nord	11

Number of renal biopsies at different hospitals, 2007



Hospital	Number
Akershus Universitetssykehus	25
Fylkessjukehuset i Haugesund	7
Førde Sentralsjukehus	8
Haukeland Universitetssykehus	63
Molde sjukehus	0
Nordlandssykehuset	21
Rikshospitalet	35
Ringerike sykehus	6
St.Olavs Hospital	40
Stavanger Universitetssjukehus	39
Stord sjukehus	4
Sykehuset Buskerud	21
Sykehuset Innlandet, Elverum	6
Sykehuset Innlandet, Lillehammer	20
Sykehuset Levanger	12
Sykehuset Telemark	13
Sykehuset Østfold, Fredrikstad	20
Sykehuset Østfold, Sarpsborg	0
Sørlandet Sykehus, Arendal	5
Sørlandet Sykehus, Kristiansand	18
Ullevål Universtetssykehus	48
Universitetssykehuset Nord-Norge	30
Vestfold Sentralsykehus	16
Ålesund sjukehus	14
Total	471

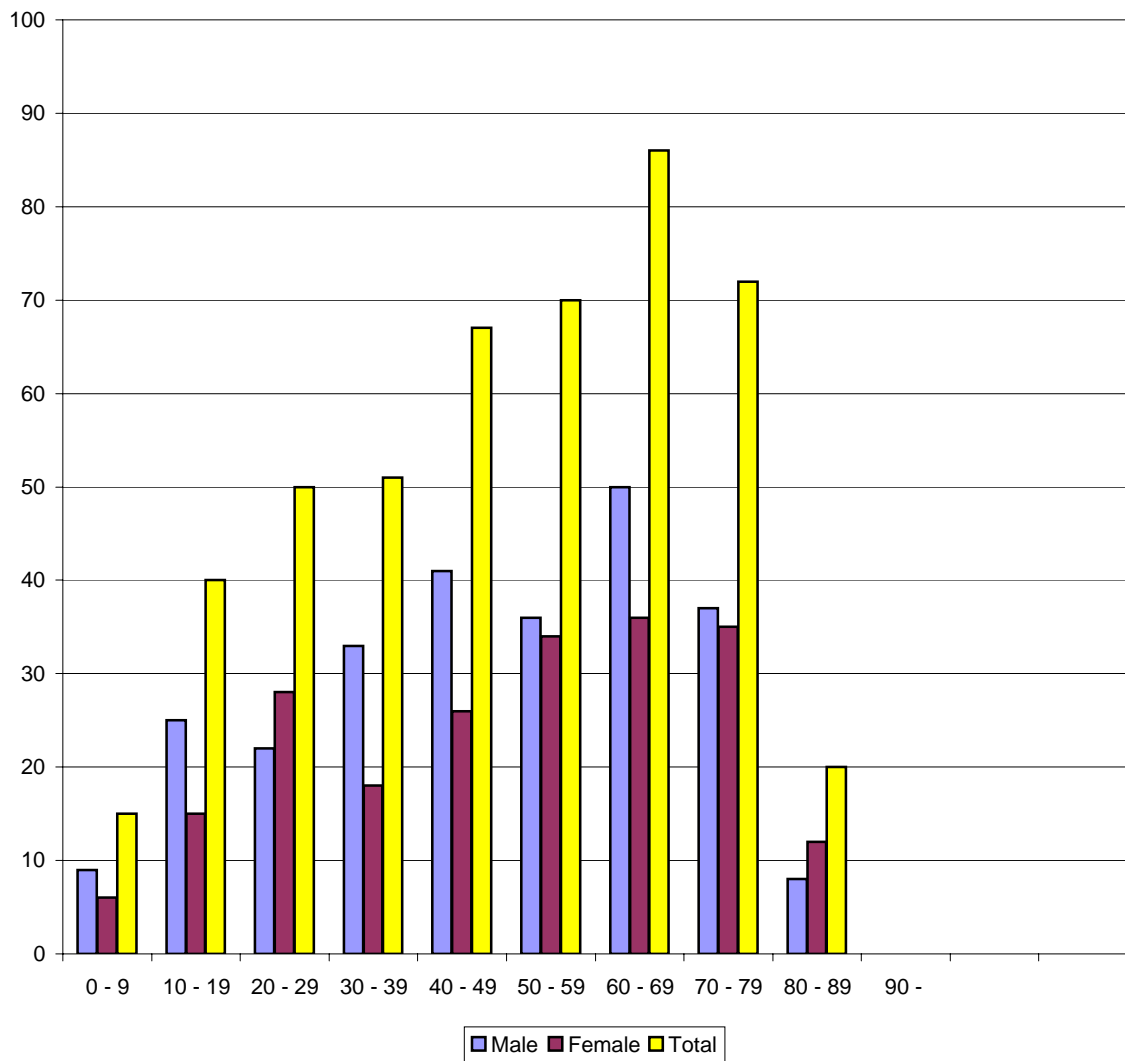
Total number of renal biopsies in males and females, 2007



n=471

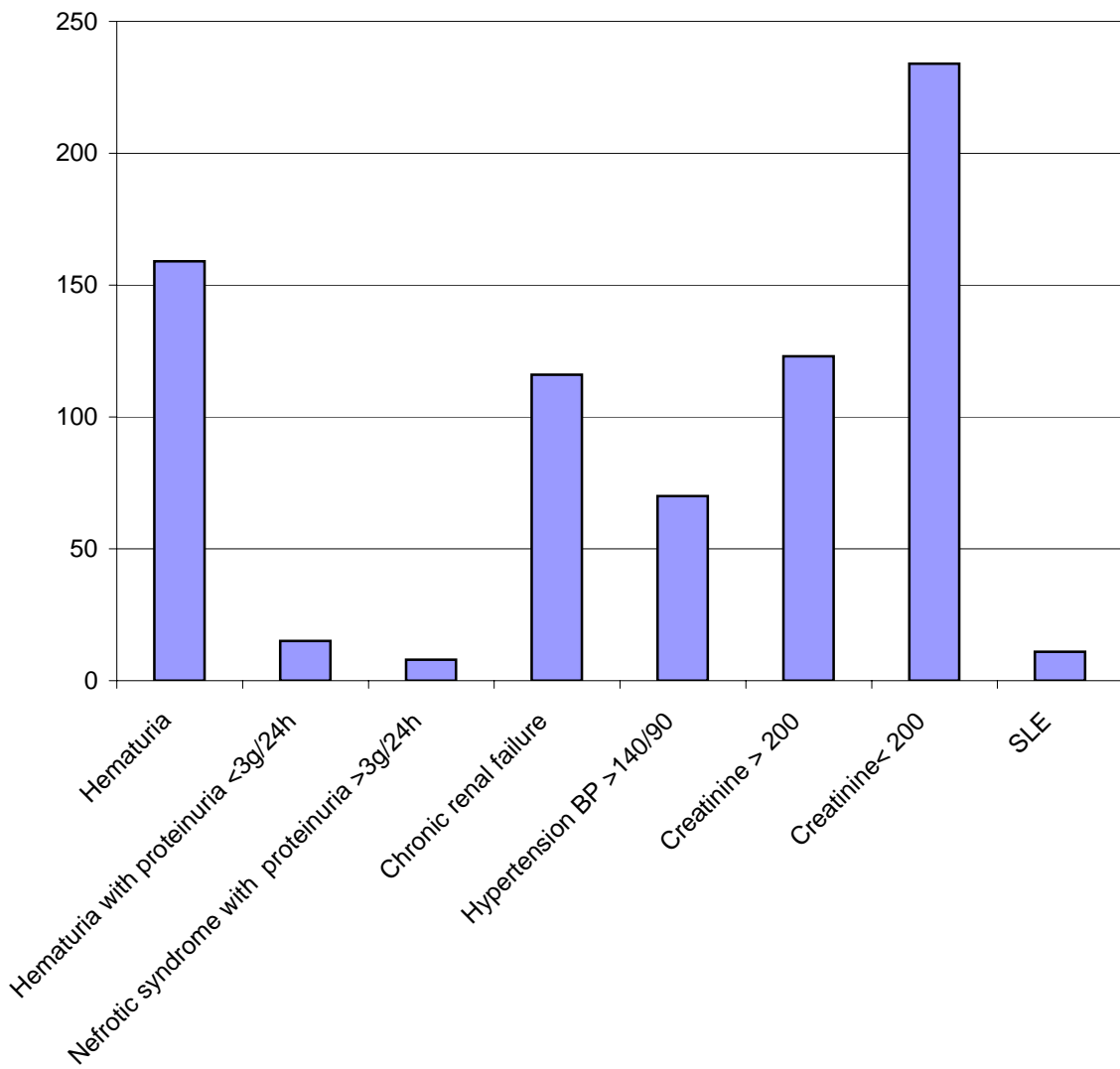
Males	261	(55.4%)
Females	210	(44.6%)

Age and gender, 2007



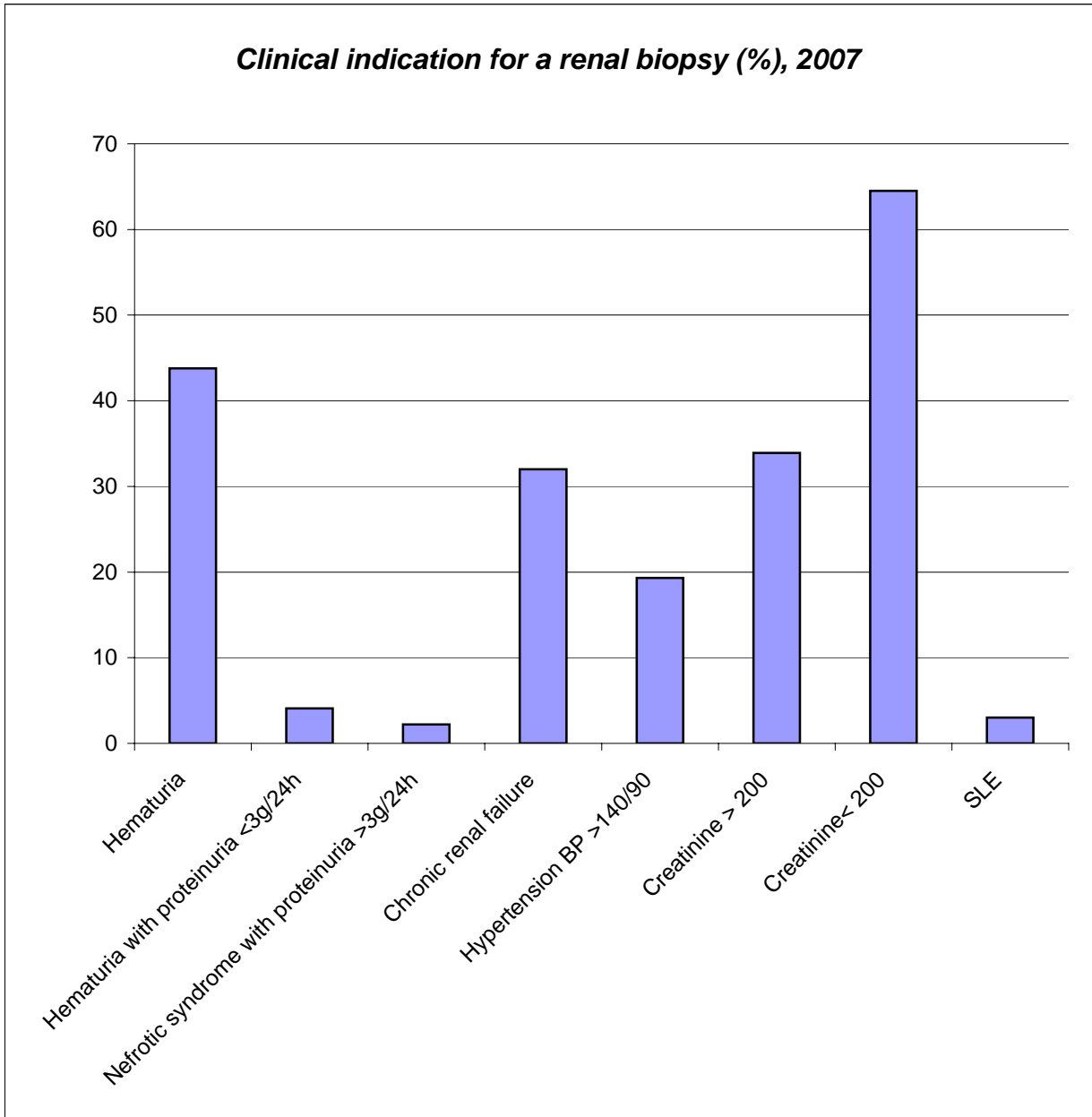
Age	Male	Female	Total
0 - 9	9	6	15
10 - 19	25	15	40
20 - 29	22	28	50
30 - 39	33	18	51
40 - 49	41	26	67
50 - 59	36	34	70
60 - 69	50	36	86
70 - 79	37	35	72
80 - 89	8	12	20
90 -	0	0	0

Clinical indications for a renal biopsy, 2007



Clinical indication	Number
Hematuria	159
Hematuria with proteinuria <3g/24h	15
Nefrotic syndrome with proteinuria >3g/24h	8
Chronic renal failure	116
Hypertension BP >140/90	70
Creatinine > 200	123
Creatinine < 200	234
SLE	11

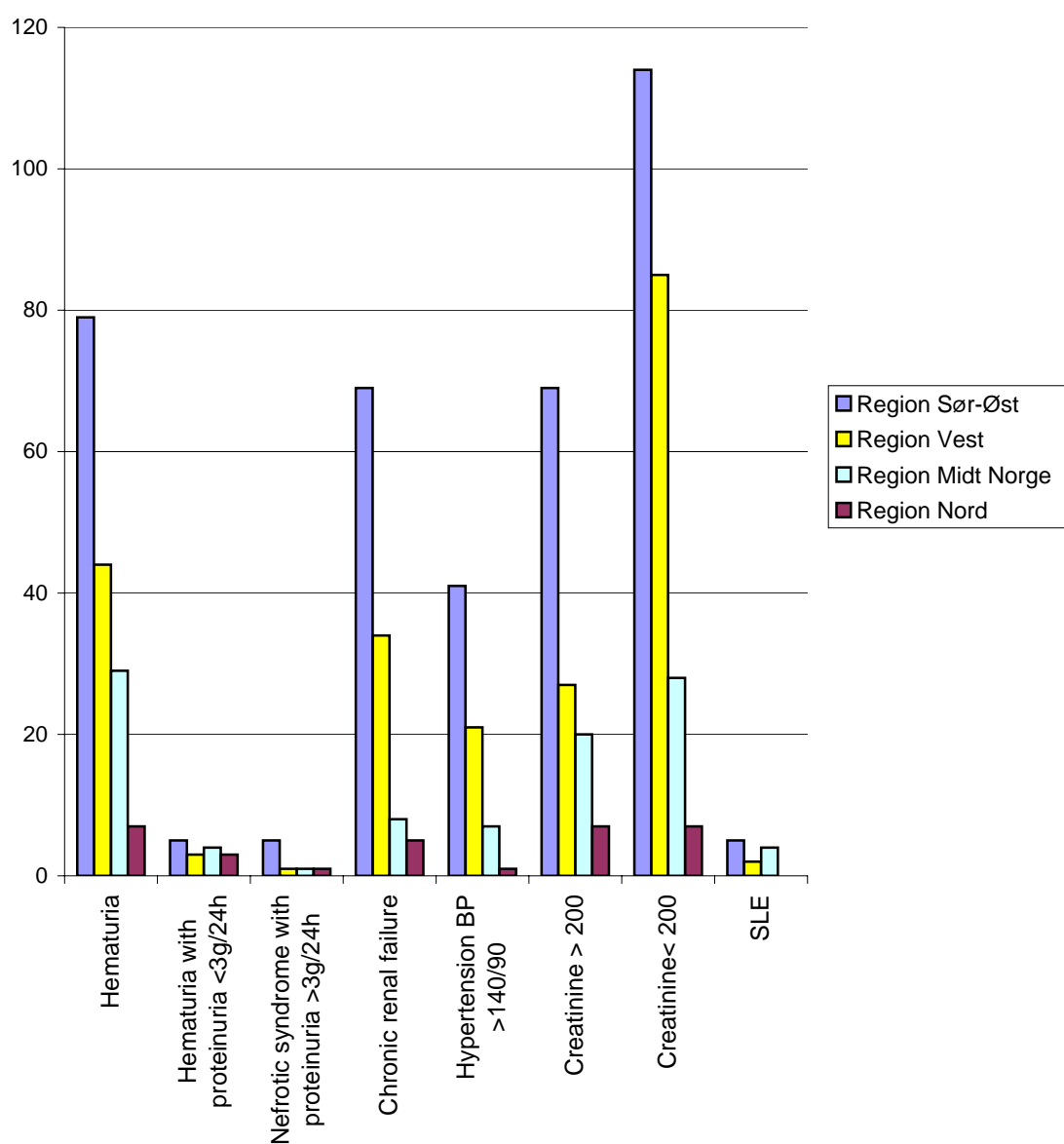
Clinical indication for a renal biopsy (%), 2007



n=363

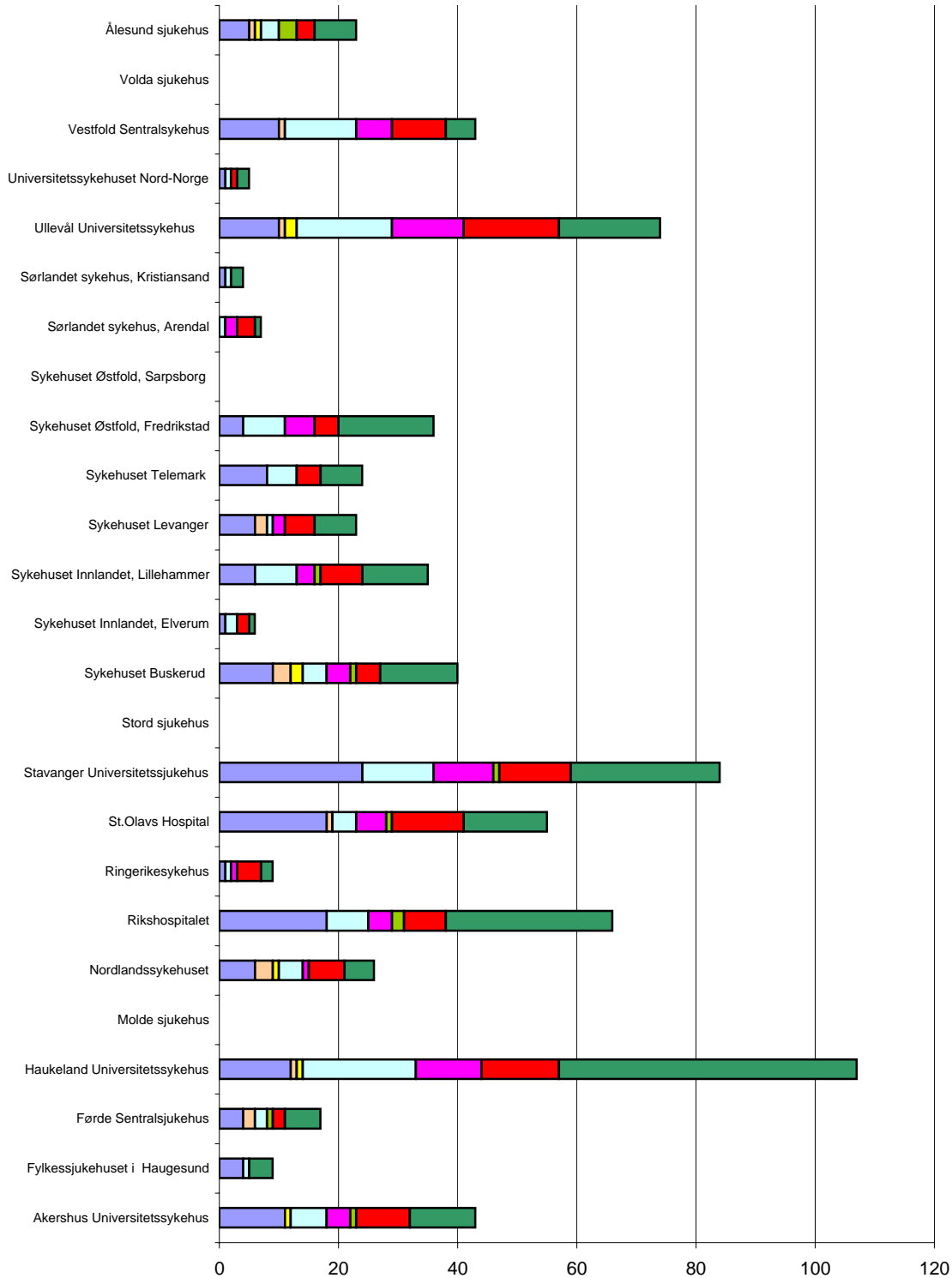
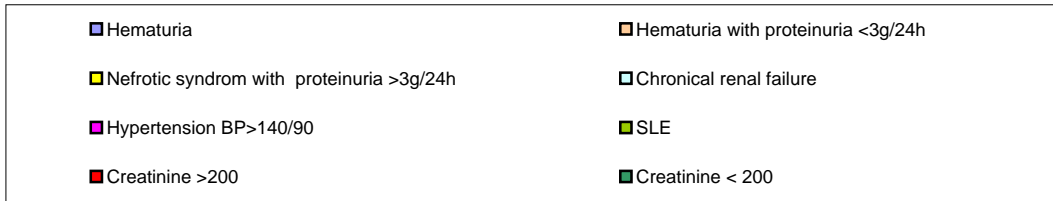
Clinical indication	%
Hematuria	43,8
Hematuria with proteinuria <3g/24h	4,1
Nefrotic syndrome with proteinuria >3g/24h	2,2
Chronic renal failure	32
Hypertension BP >140/90	19,3
Creatinine > 200	33,9
Creatinine< 200	64,5
SLE	3

Clinical indication in different regions, 2007

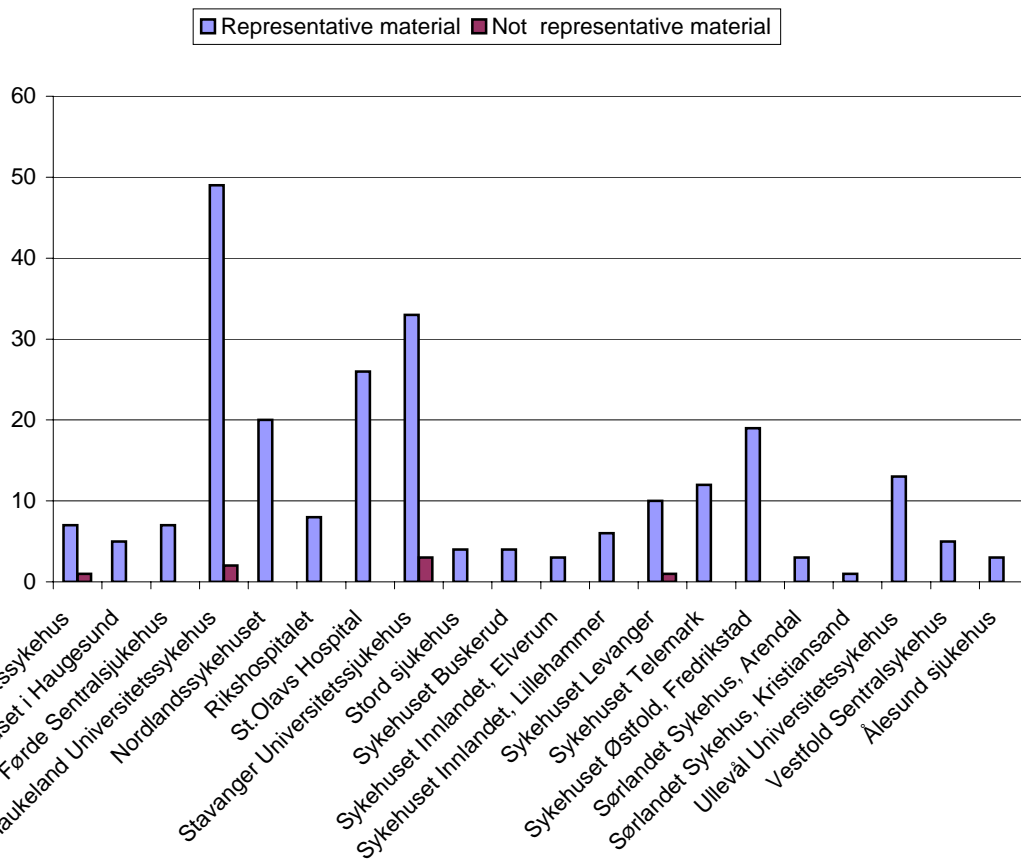


Clinical indication	Region Sør-Øst	Region Vest	Region Midt Norge	Region Nord
Hematuria	79	44	29	7
Hematuria with proteinuria <3g/24h	5	3	4	3
Nefrotic syndrome with proteinuria >3g/24h	5	1	1	1
Chronic renal failure	69	34	8	5
Hypertension BP >140/90	41	21	7	1
Creatinine > 200	69	27	20	7
Creatinine < 200	114	85	28	7
SLE	5	2	4	0

Clinical indications at different hospitals, 2007

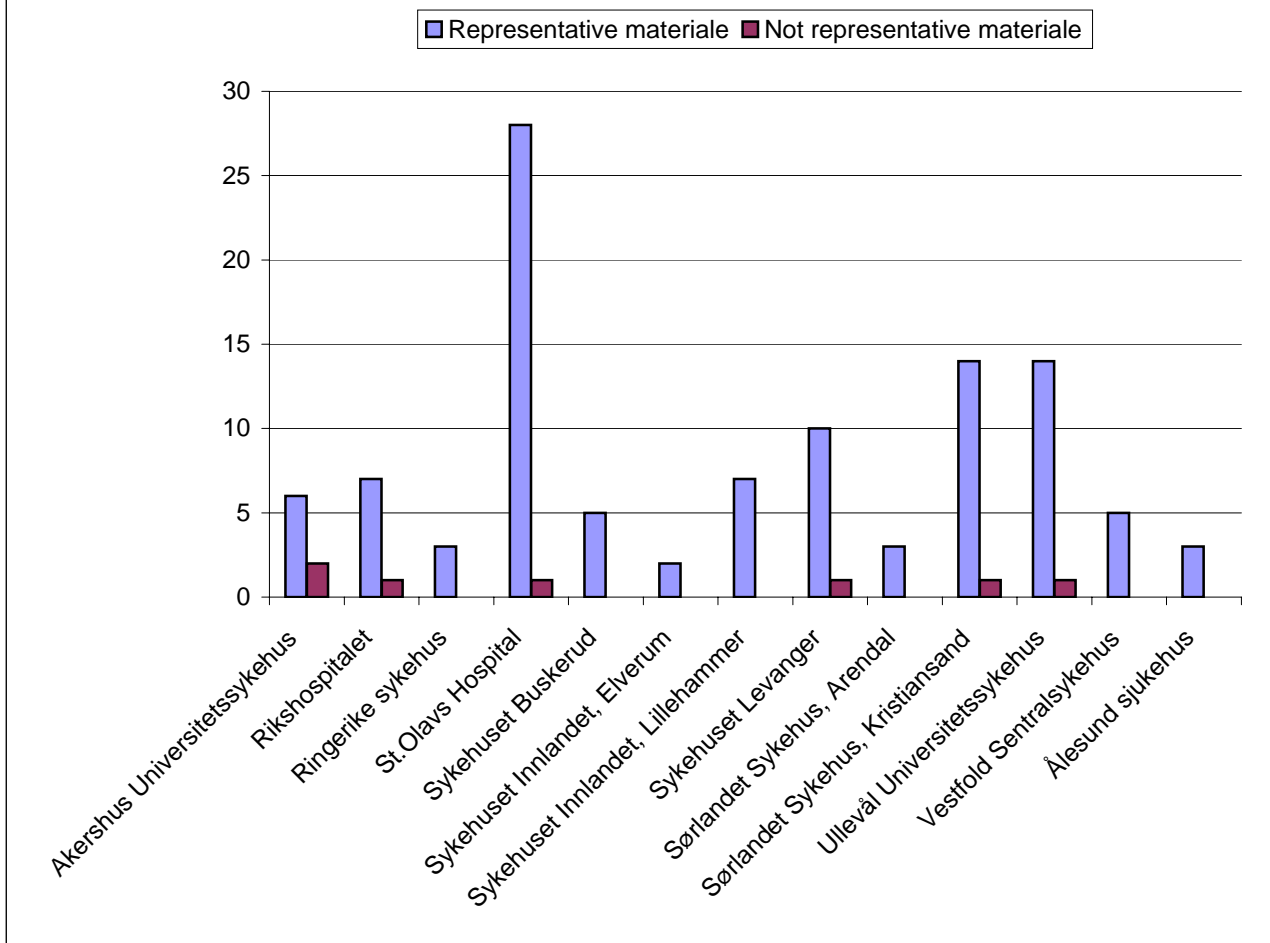


Renal morphology, local pathologist, 2007



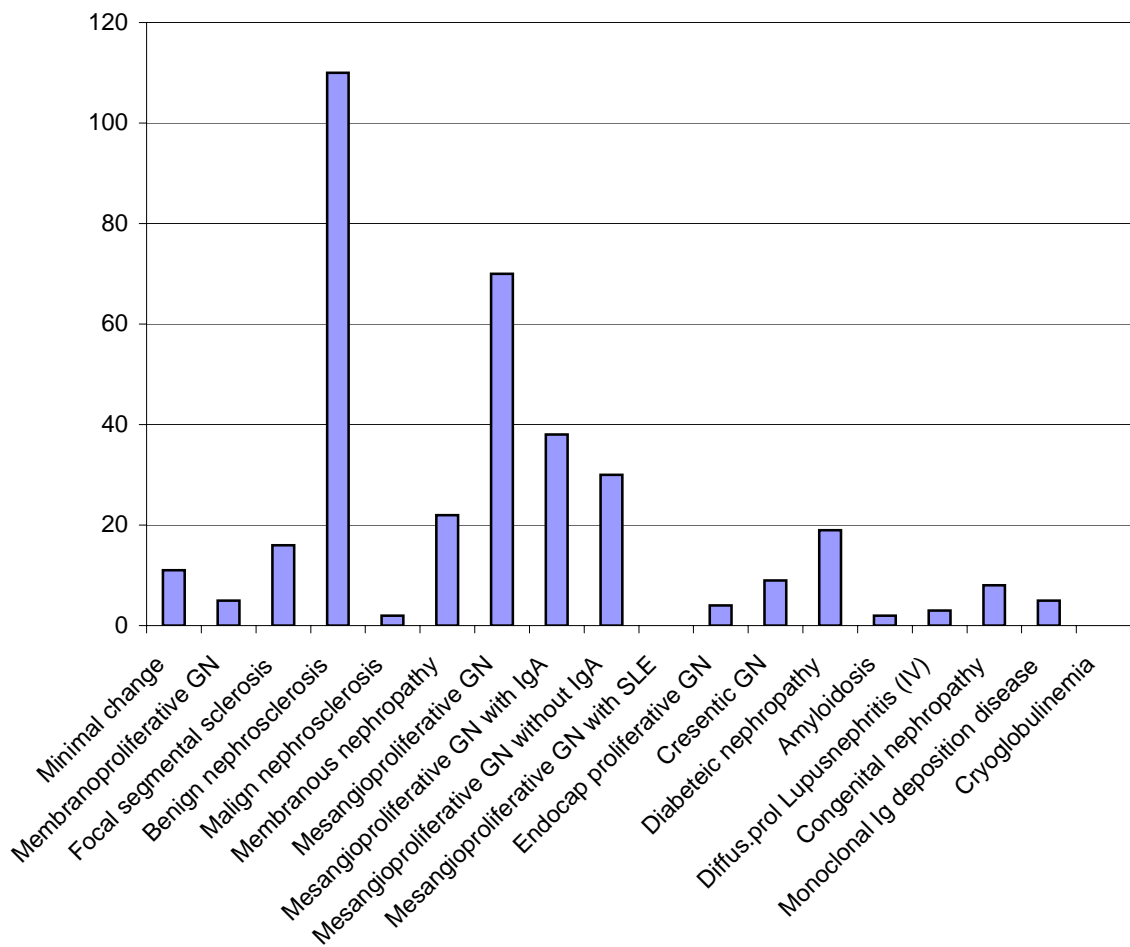
Hospital	Representative material	Not representative material
Akershus Universitetssykehus	7	1
Fylkessjukehuset i Haugesund	5	0
Førde Sentralsykehus	7	0
Haukeland Universitetssykehus	49	2
Nordlandssykehuset	20	0
Rikshospitalet	8	0
St.Olavs Hospital	26	0
Stavanger Universitetssykehus	33	3
Stord sjukehus	4	0
Sykehuset Buskerud	4	0
Sykehuset Innlandet, Elverum	3	0
Sykehuset Innlandet, Lillehammer	6	0
Sykehuset Levanger	10	1
Sykehuset Telemark	12	0
Sykehuset Østfold, Fredrikstad	19	0
Sørlandet Sykehus, Arendal	3	0
Sørlandet Sykehus, Kristiansand	1	0
Ullevål Universitetssykehus	13	0
Vestfold Sentralsykehus	5	0
Ålesund sjukehus	3	0
Total	238	7

Renal morphology, register patologist, 2007



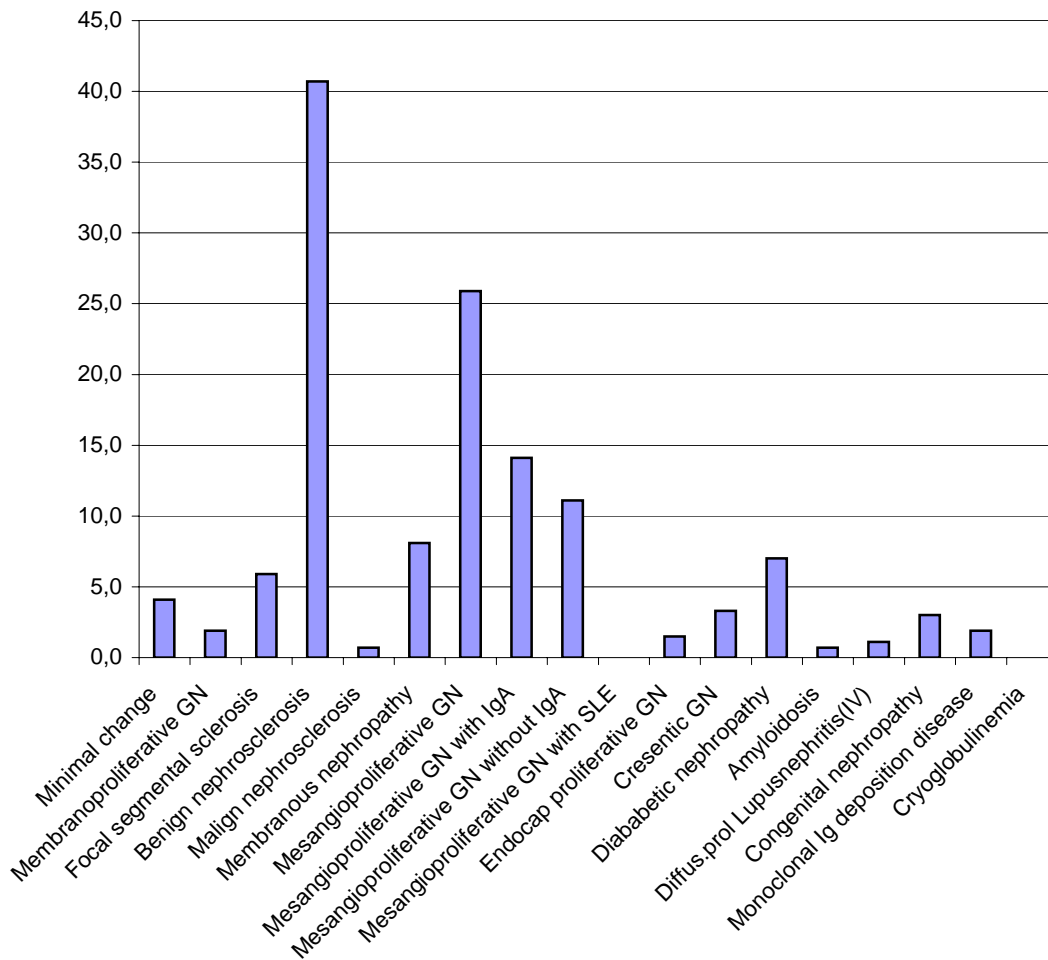
Hospital	Representative materiale	Not representative materiale
Akershus Universitetssykehus	6	2
Rikshospitalet	7	1
Ringerike sykehus	3	0
St.Olavs Hospital	28	1
Sykehuset Buskerud	5	0
Sykehuset Innlandet, Elverum	2	0
Sykehuset Innlandet, Lillehammer	7	0
Sykehuset Levanger	10	1
Sørlandet Sykehus, Arendal	3	0
Sørlandet Sykehus, Kristiansand	14	1
Ullevål Universitetssykehus	14	1
Vestfold Sentralsykehus	5	0
Ålesund sjukehus	3	0
Total	107	7

Histopathology diagnosis, 2007



Diagnosis	Number
Minimal change	11
Membranoproliferative GN	5
Focal segmental sclerosis	16
Benign nephrosclerosis	110
Malign nephrosclerosis	2
Membranous nephropathy	22
Mesangioproliferative GN	70
Mesangioproliferative GN with IgA	38
Mesangioproliferative GN without IgA	30
Mesangioproliferative GN with SLE	0
Endocap proliferative GN	4
Crescentic GN	9
Diabetic nephropathy	19
Amyloidosis	2
Diffus.prol Lupusnephritis (IV)	3
Congenital nephropathy	8
Monoclonal Ig deposition disease	5
Cryoglobulinemia	0

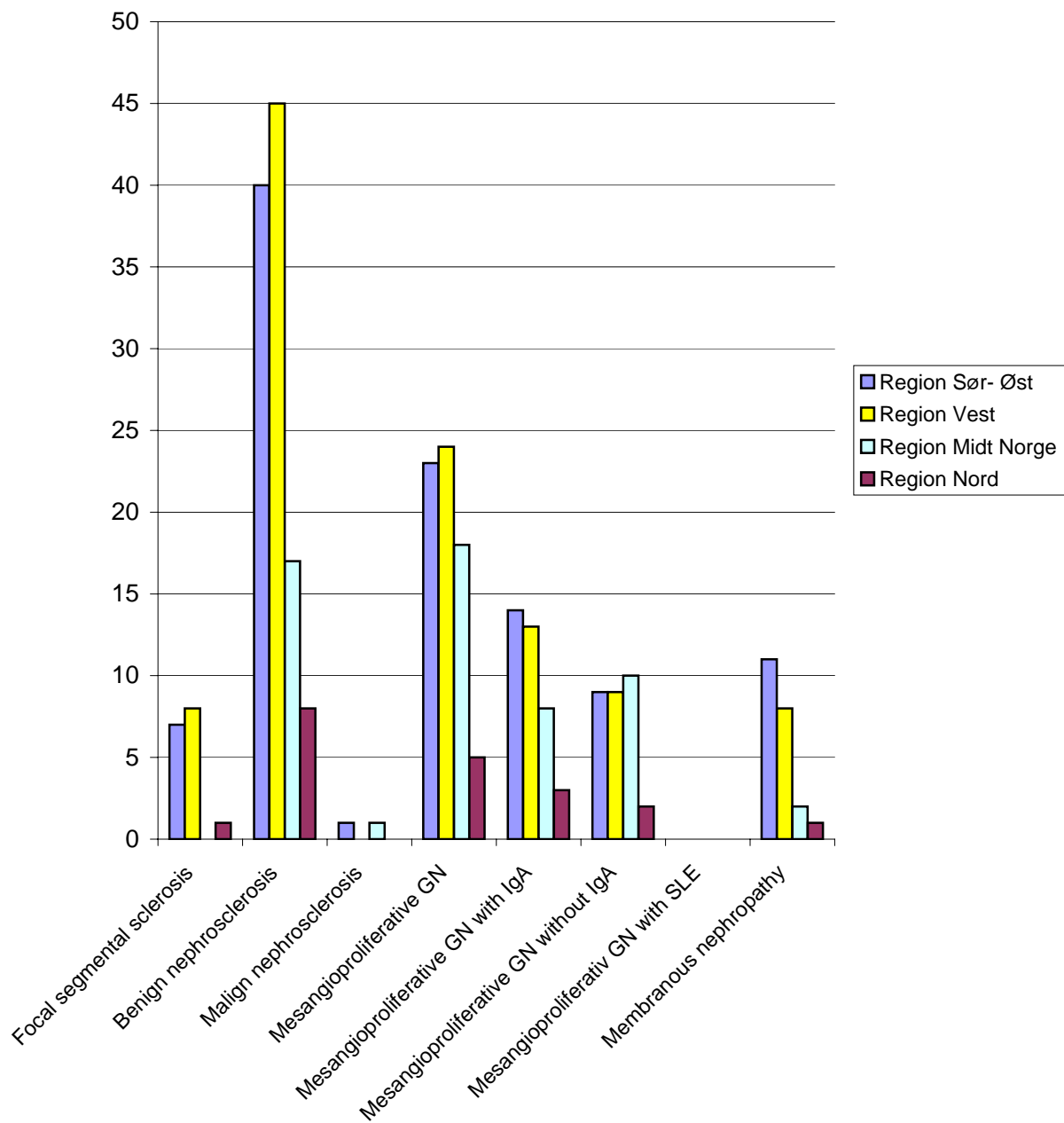
Histopathology diagnosis % of all, 2007



n=270

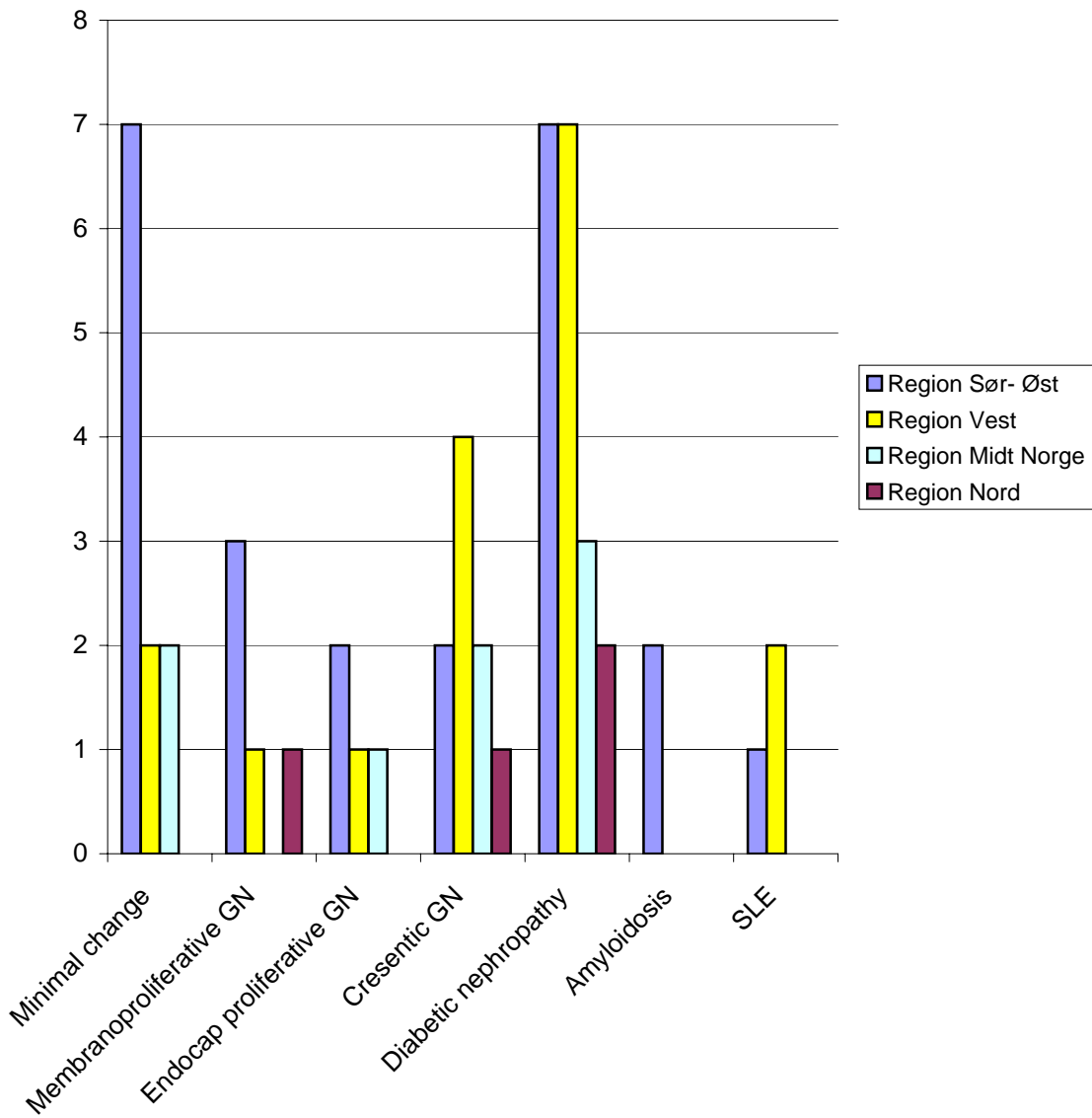
Diagnosis	%
Minimal change	4,1
Membranoproliferative GN	1,9
Focal segmental sclerosis	5,9
Benign nephrosclerosis	40,7
Malign nephrosclerosis	0,7
Membranous nephropathy	8,1
Mesangioproliferative GN	25,9
Mesangioproliferative GN with IgA	14,1
Mesangioproliferative GN without IgA	11,1
Mesangioproliferative GN with SLE	0,0
Endocap proliferative GN	1,5
Crescentic GN	3,3
Diabetic nephropathy	7,0
Amyloidosis	0,7
Diffus.prol Lupusnephritis(IV)	1,1
Congenital nephropathy	3,0
Monoclonal Ig deposition disease	1,9
Cryoglobulinemia	0,0

Renal pathology in different regions, 2007

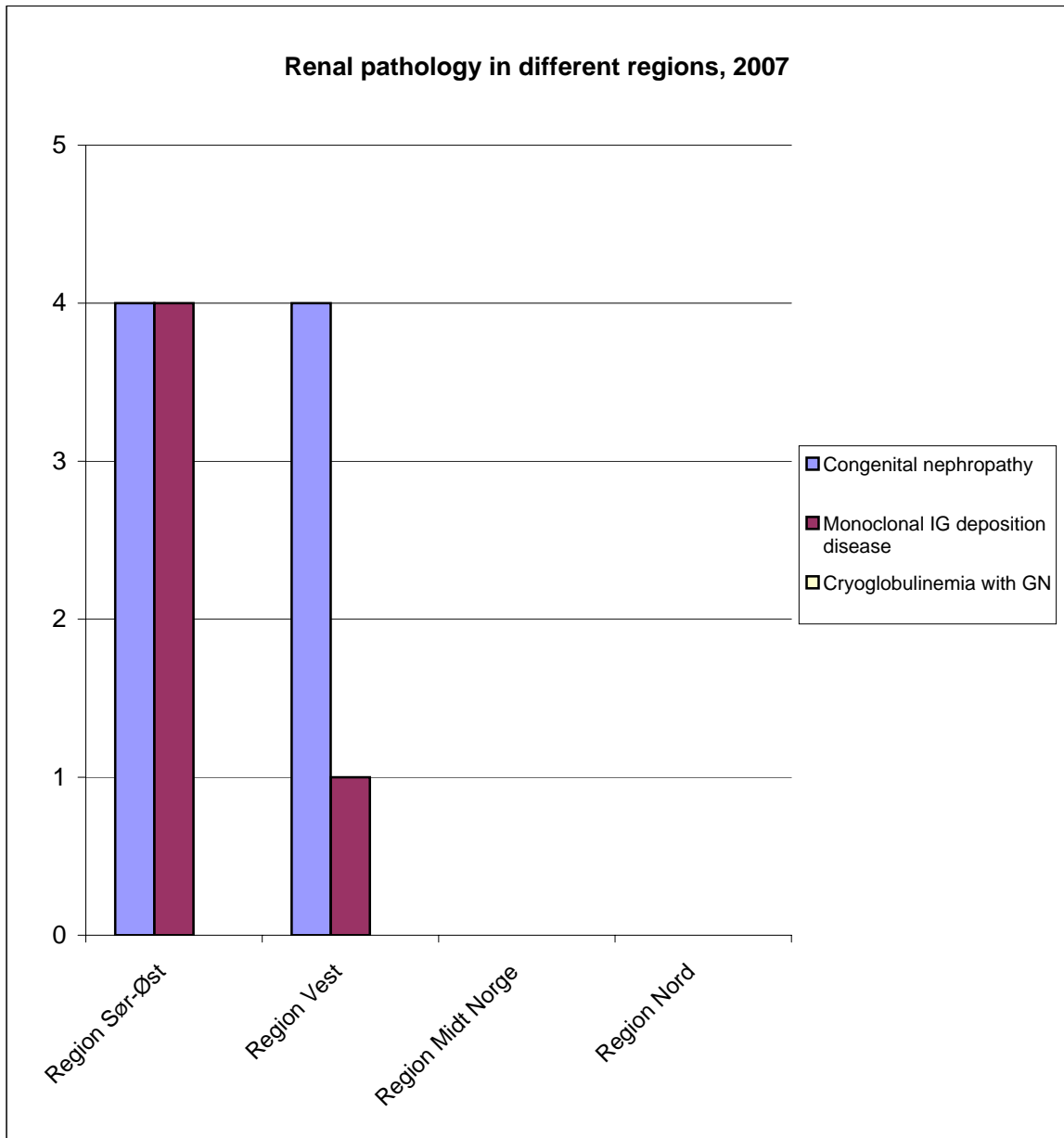


Diagnosis	Region Sør- Øst	Region Vest	Region Midt Norge	Region Nord
Focal segmental sclerosis	7	8	0	1
Benign nephrosclerosis	40	45	17	8
Malign nephrosclerosis	1	0	1	0
Mesangioproliferative GN	23	24	18	5
Mesangioproliferative GN with IgA	14	13	8	3
Mesangioproliferative GN without IgA	9	9	10	2
Mesangioproliferativ GN with SLE	0	0	0	0
Membranous nephropathy	11	8	2	1

Renal pathology in different regions, 2007

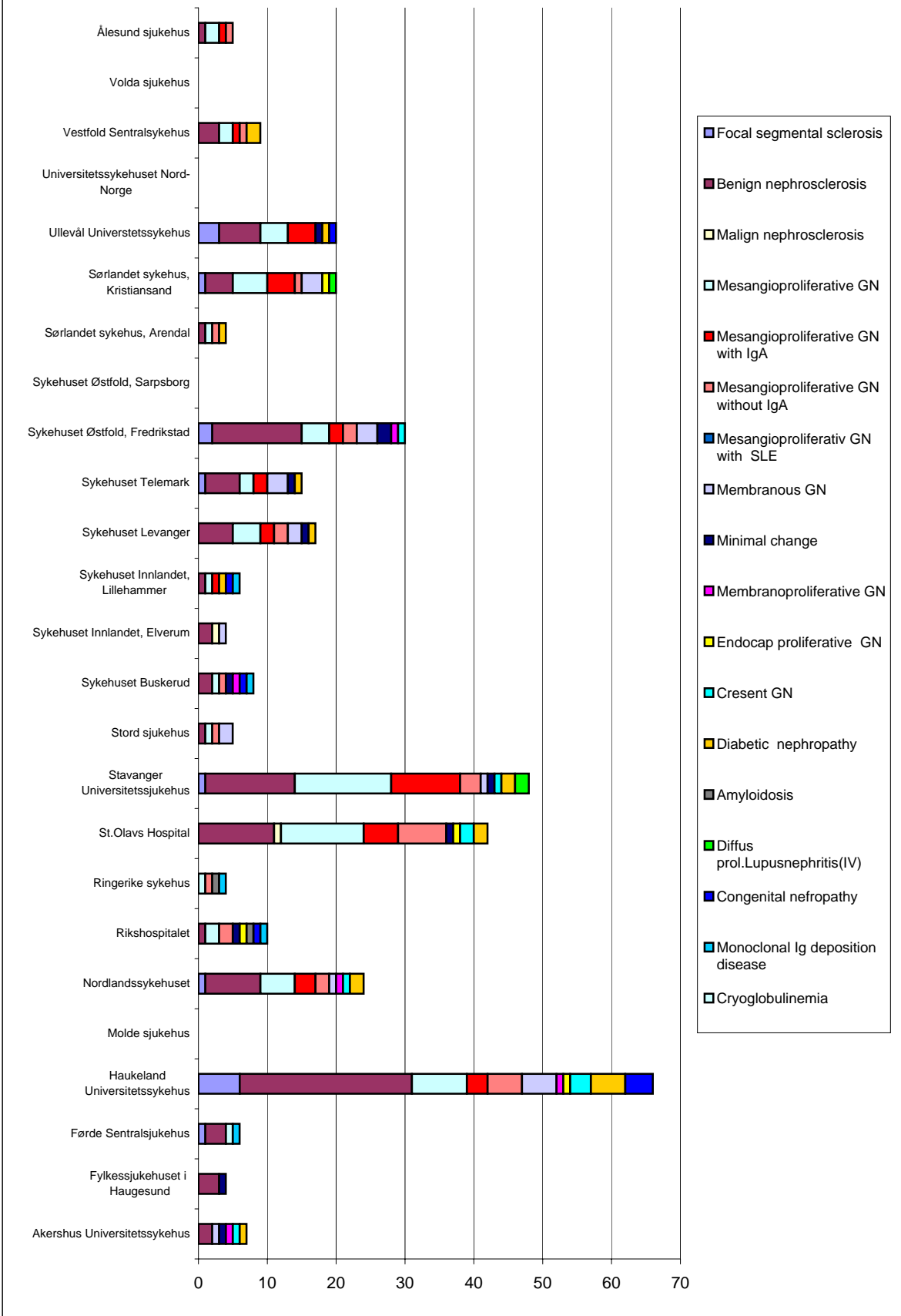


Diagnosis	Region Sør- Øst	Region Vest	Region Midt Norge	Region Nord
Minimal change	7	2	2	0
Membranoproliferative GN	3	1	0	1
Endocap proliferative GN	2	1	1	0
Cresentic GN	2	4	2	1
Diabetic nephropathy	7	7	3	2
Amyloidosis	2	0	0	0
SLE	1	2	0	0

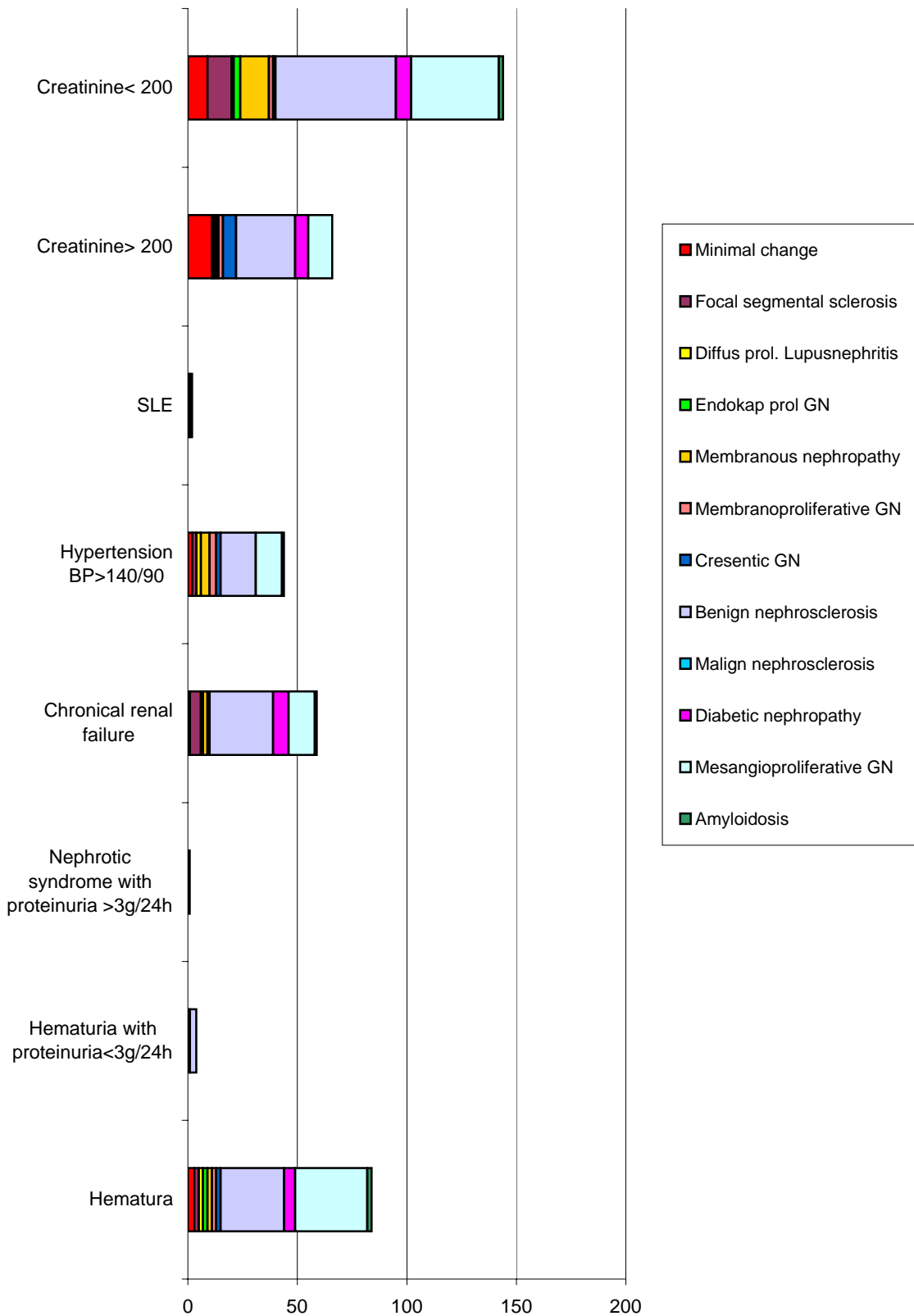


Diagnosis	Region Sør-Øst	Region Vest	Region Midt Norge	Region Nord
Congenital nephropathy	4	4	0	0
Monoclonal IG deposition disease	4	1	0	0
Cryoglobulinemia with GN	0	0	0	0

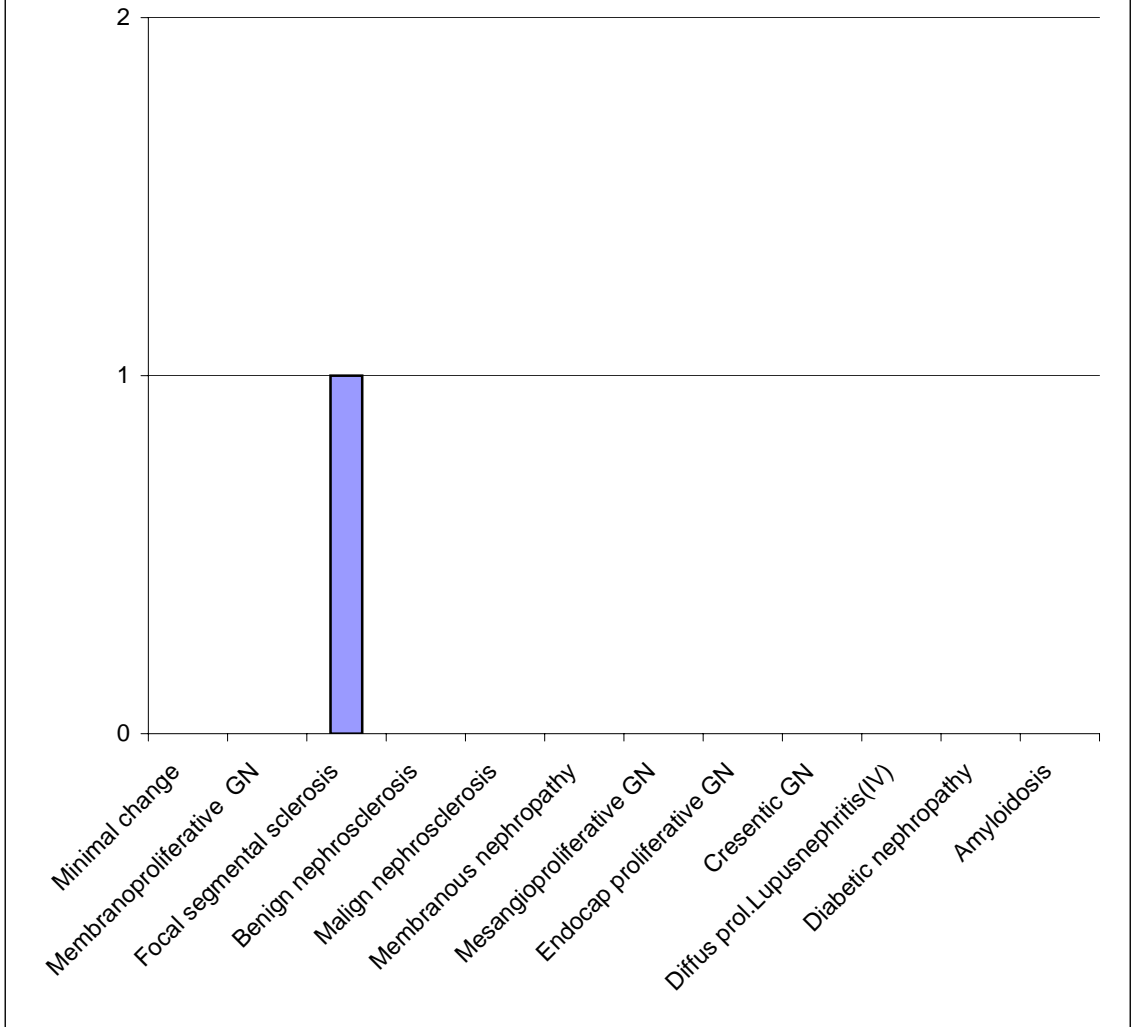
Morphology at different hospitals, 2007



Clinical indication with morphology, 2007

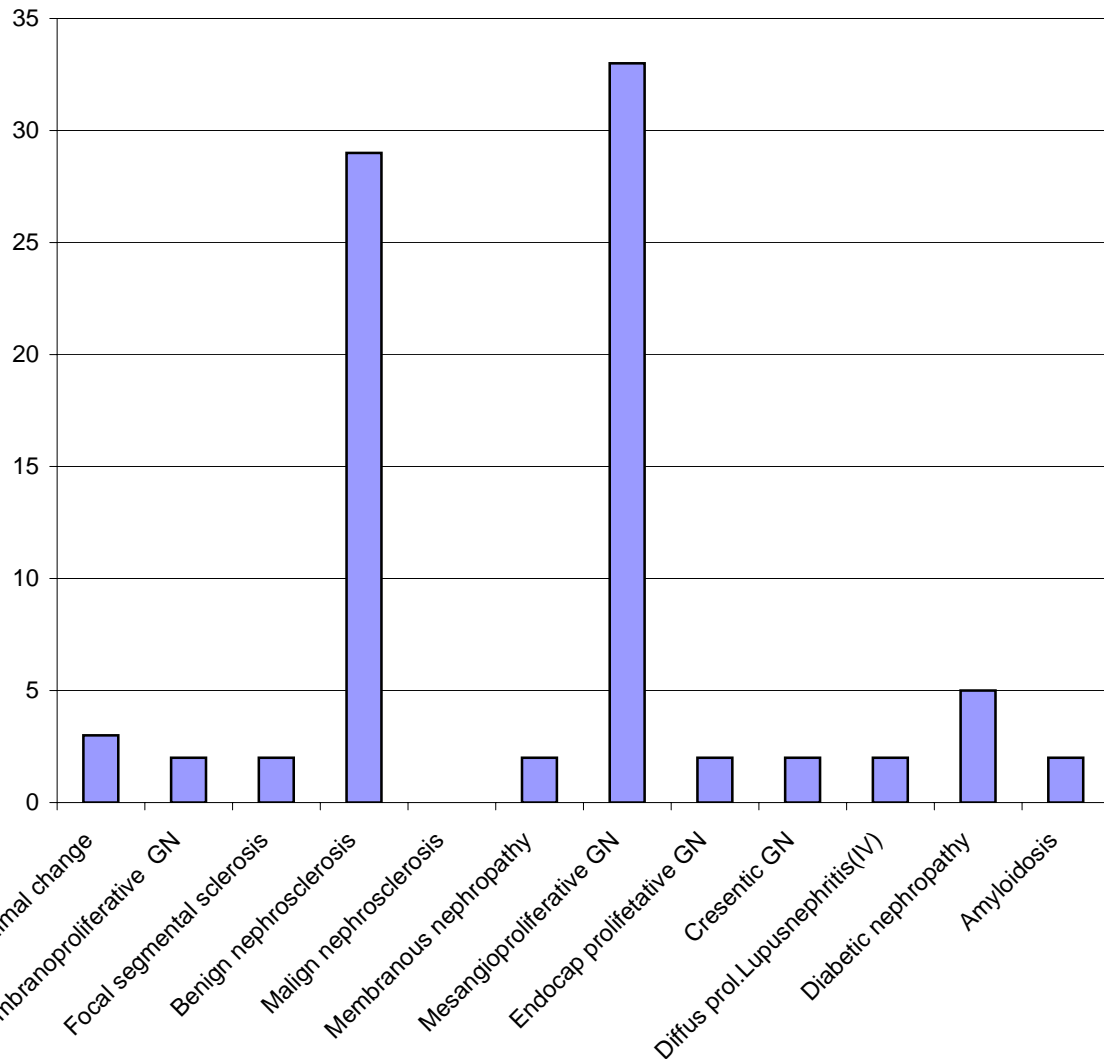


Morphology in patients with nephrotic syndrom and proteinuria>3g/24h, 2007



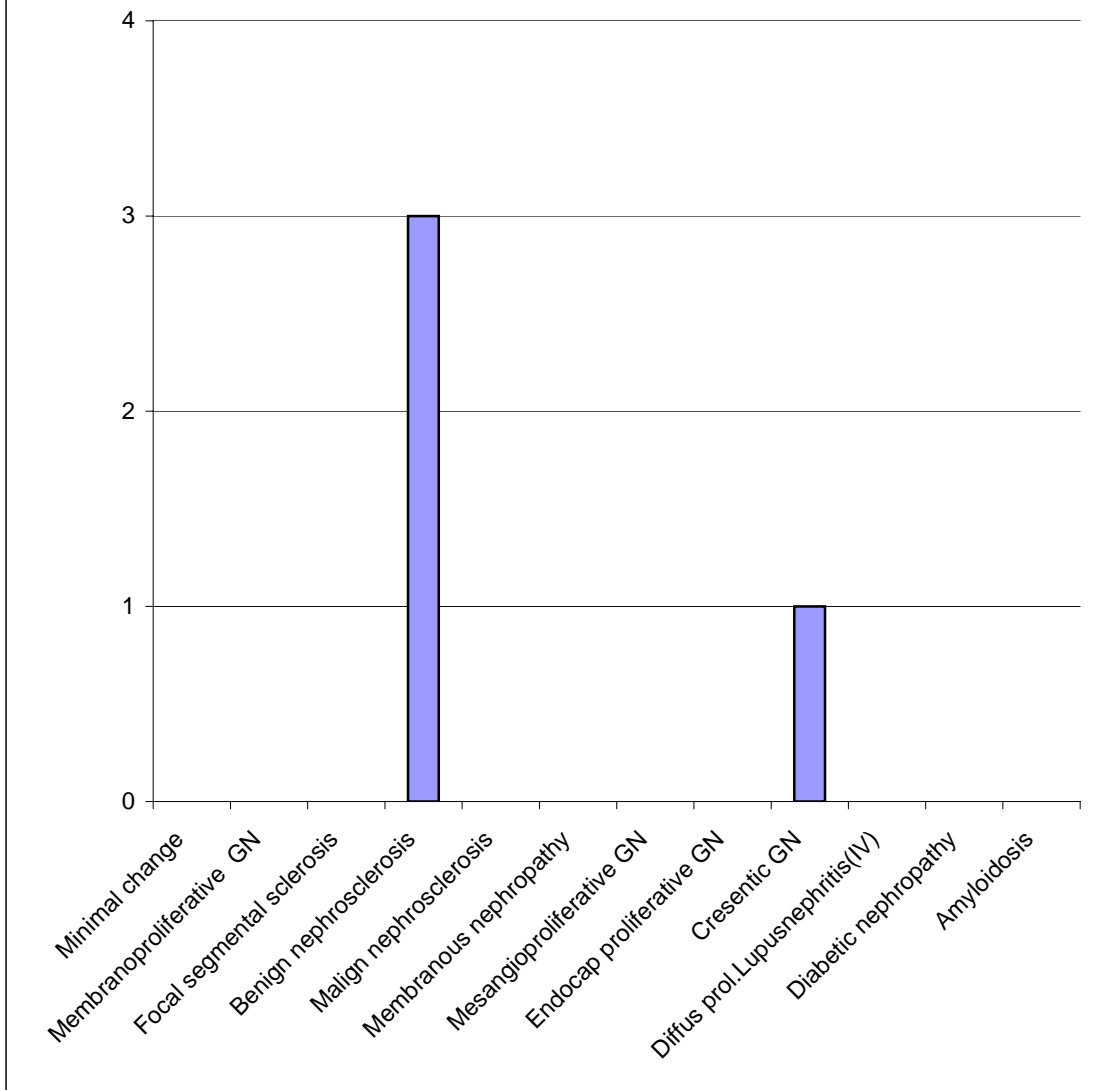
Morphology	Number
Minimal change	0
Membranoproliferative GN	0
Focal segmental sclerosis	1
Benign nephrosclerosis	0
Malign nephrosclerosis	0
Membranous nephropathy	0
Mesangioproliferative GN	0
Endocap proliferative GN	0
Cresentic GN	0
Diffus prol.Lupusnephritis(IV)	0
Diabetic nephropathy	0
Amyloidosis	0

Morphology in patients with Hematuria,2007



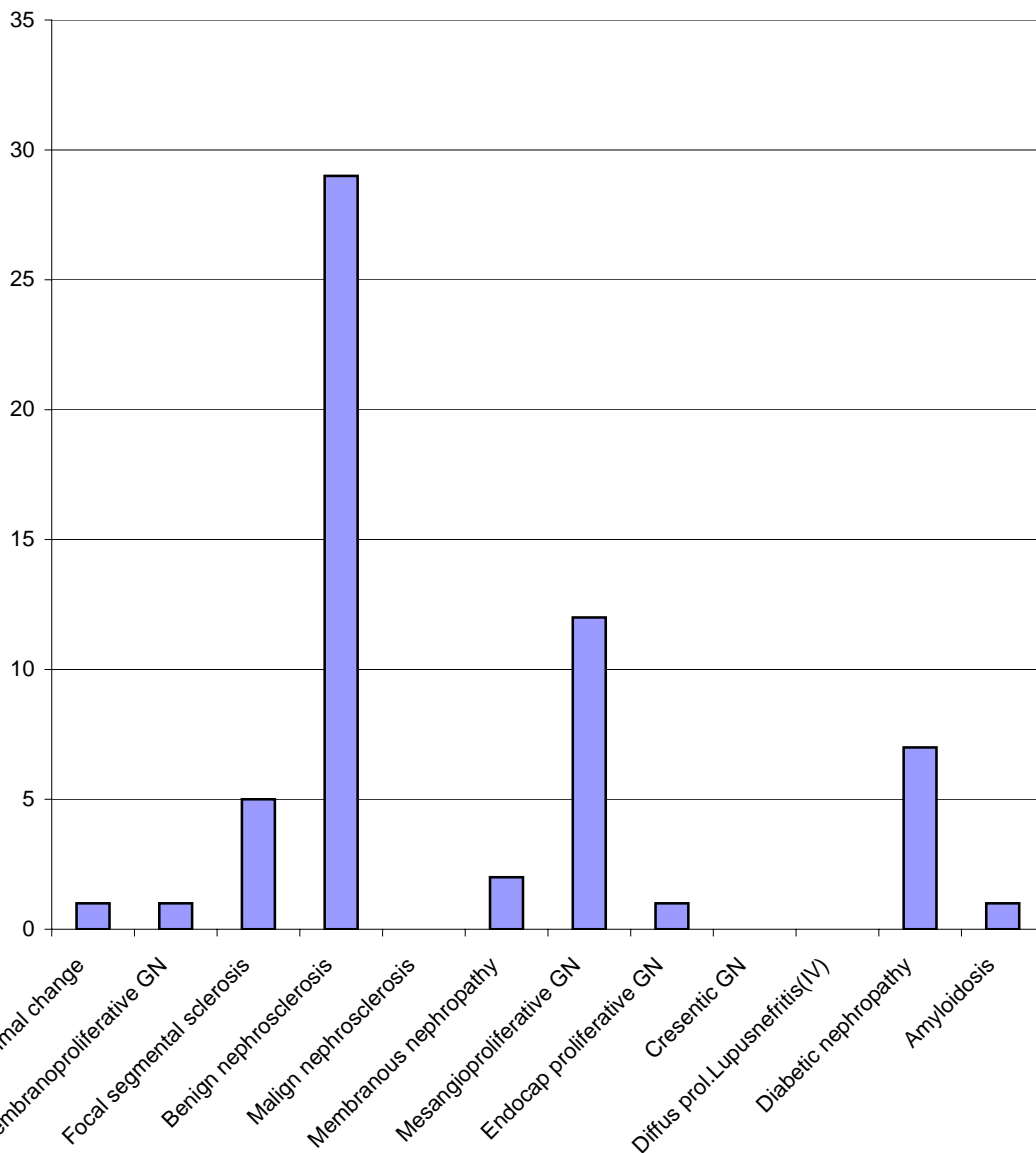
Morphology	Number
Minimal change	3
Membranoproliferative GN	2
Focal segmental sclerosis	2
Benign nephrosclerosis	29
Malign nephrosclerosis	0
Membranous nephropathy	2
Mesangioproliferative GN	33
Endocap prolifetative GN	2
Cresentic GN	2
Diffus prol.Lupusnephritis(IV)	2
Diabetic nephropathy	5
Amyloidosis	2

**Morphology in patients with hematuria
and proteinuria <3g/24h, 2007**



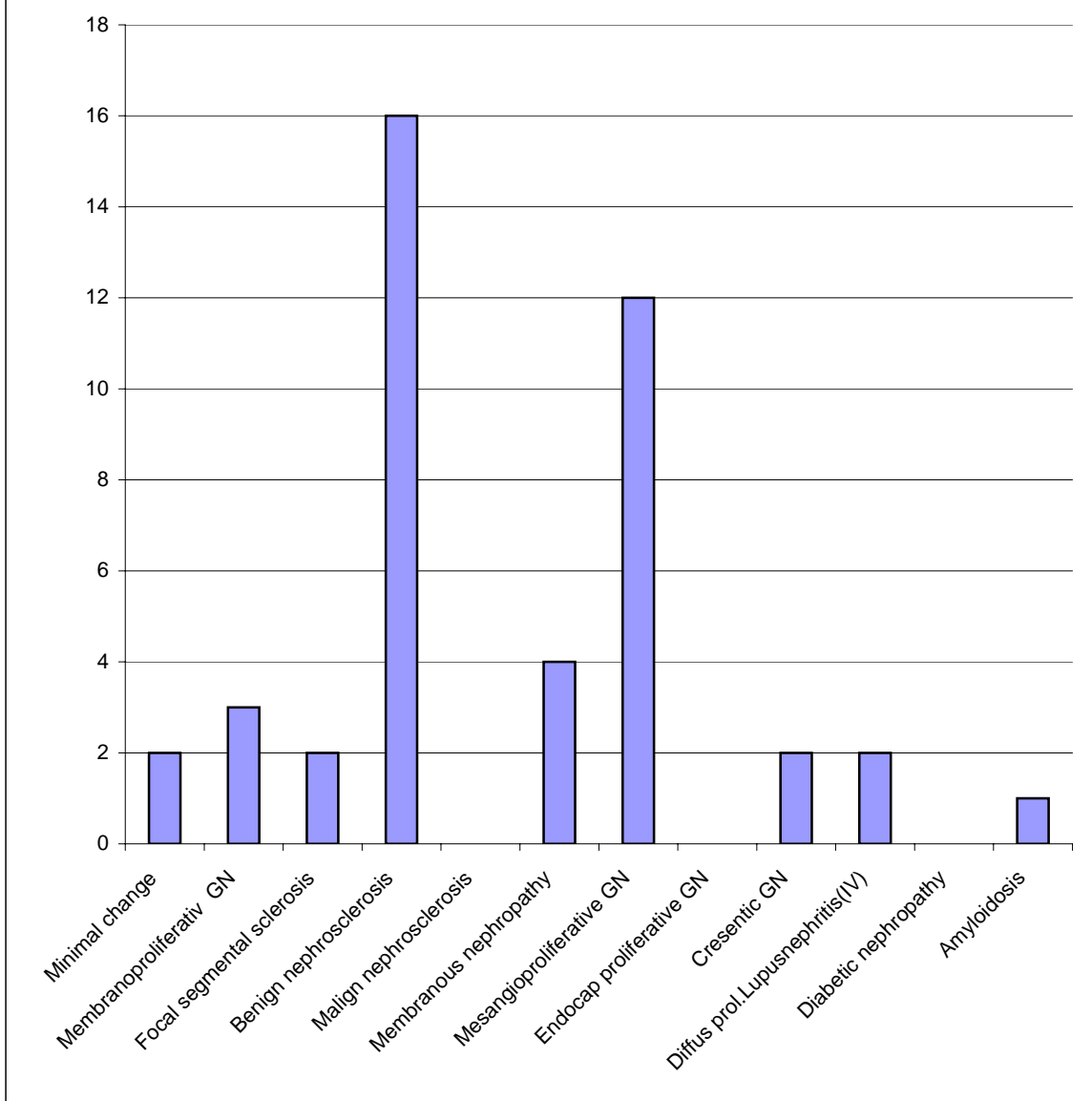
Morphology	Number
Minimal change	0
Membranoproliferative GN	0
Focal segmental sclerosis	0
Benign nephrosclerosis	3
Malign nephrosclerosis	0
Membranous nephropathy	0
Mesangioproliferative GN	0
Endocap proliferative GN	0
Cresentic GN	1
Diffus prol.Lupusnephritis(IV)	0
Diabetic nephropathy	0
Amyloidosis	0

Morphology in patients with chronic renal failure, 2007



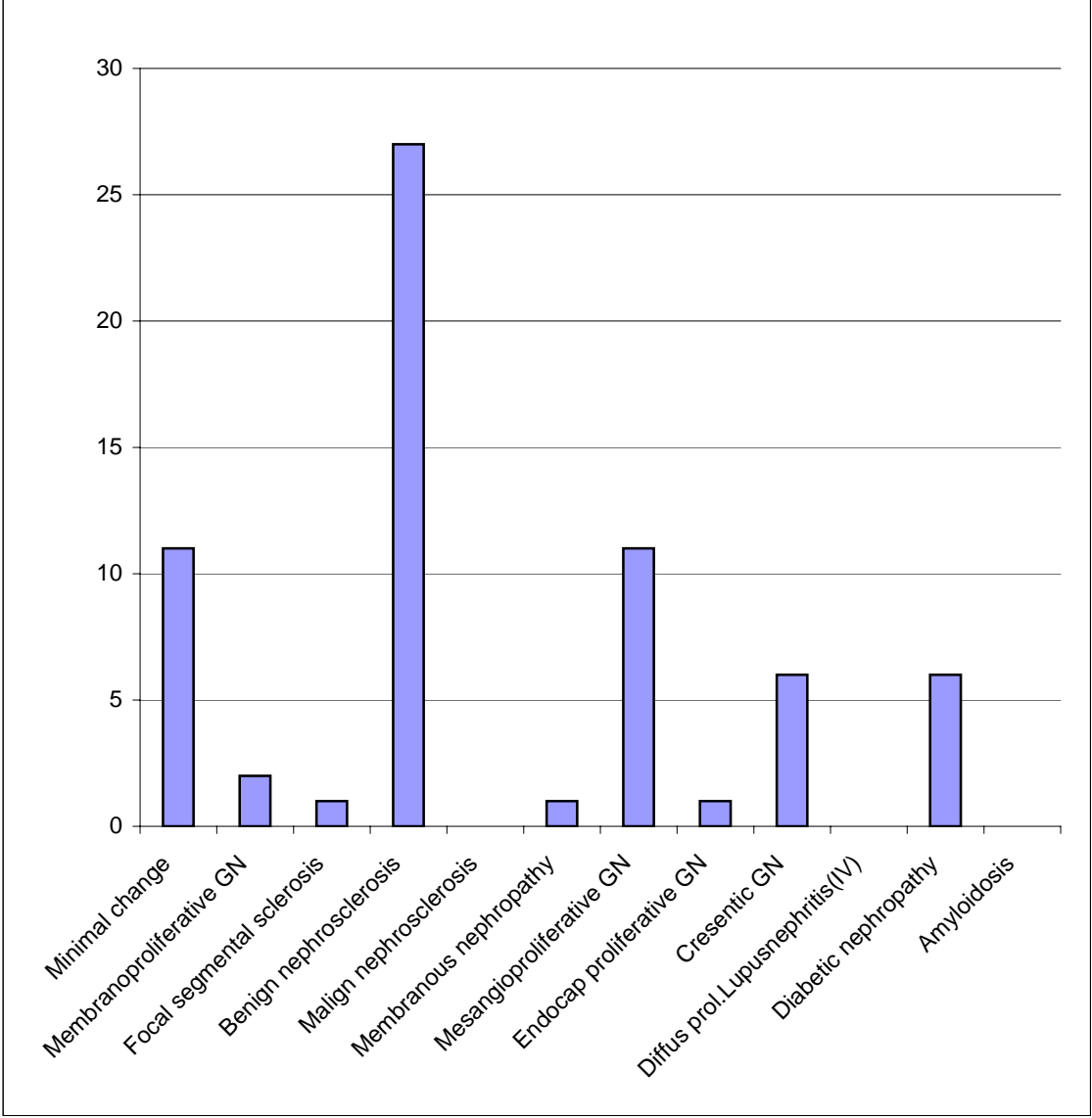
Morphology	Number
Minimal change	1
Membranoproliferative GN	1
Focal segmental sclerosis	5
Benign nephrosclerosis	29
Malign nephrosclerosis	0
Membranous nephropathy	2
Mesangioproliferative GN	12
Endocap proliferative GN	1
Crescentic GN	0
Diffus prol.Lupusnephritis(IV)	0
Diabetic nephropathy	7
Amyloidosis	1

Morphology in patients with hypertension BP >140/90, 2007



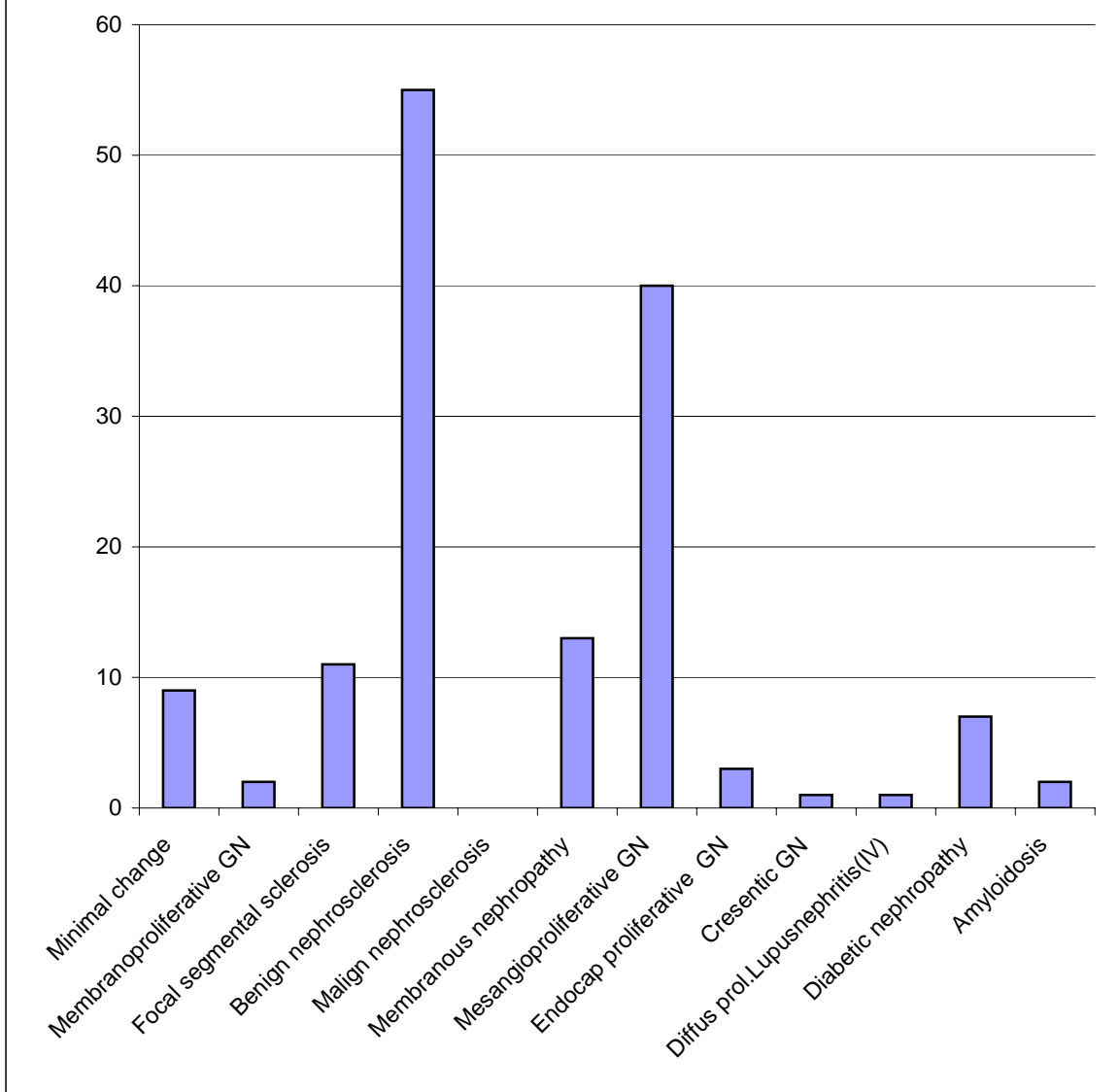
Morphology	Number
Minimal change	2
Membranoproliferativ GN	3
Focal segmental sclerosis	2
Benign nephrosclerosis	16
Malign nephrosclerosis	0
Membranous nephropathy	4
Mesangioproliferative GN	12
Endocap proliferative GN	0
Cresentic GN	2
Diffus prol.Lupusnephritis(IV)	2
Diabetic nephropathy	0
Amyloidosis	1

Morphology in patients with creatinine >200, 2007



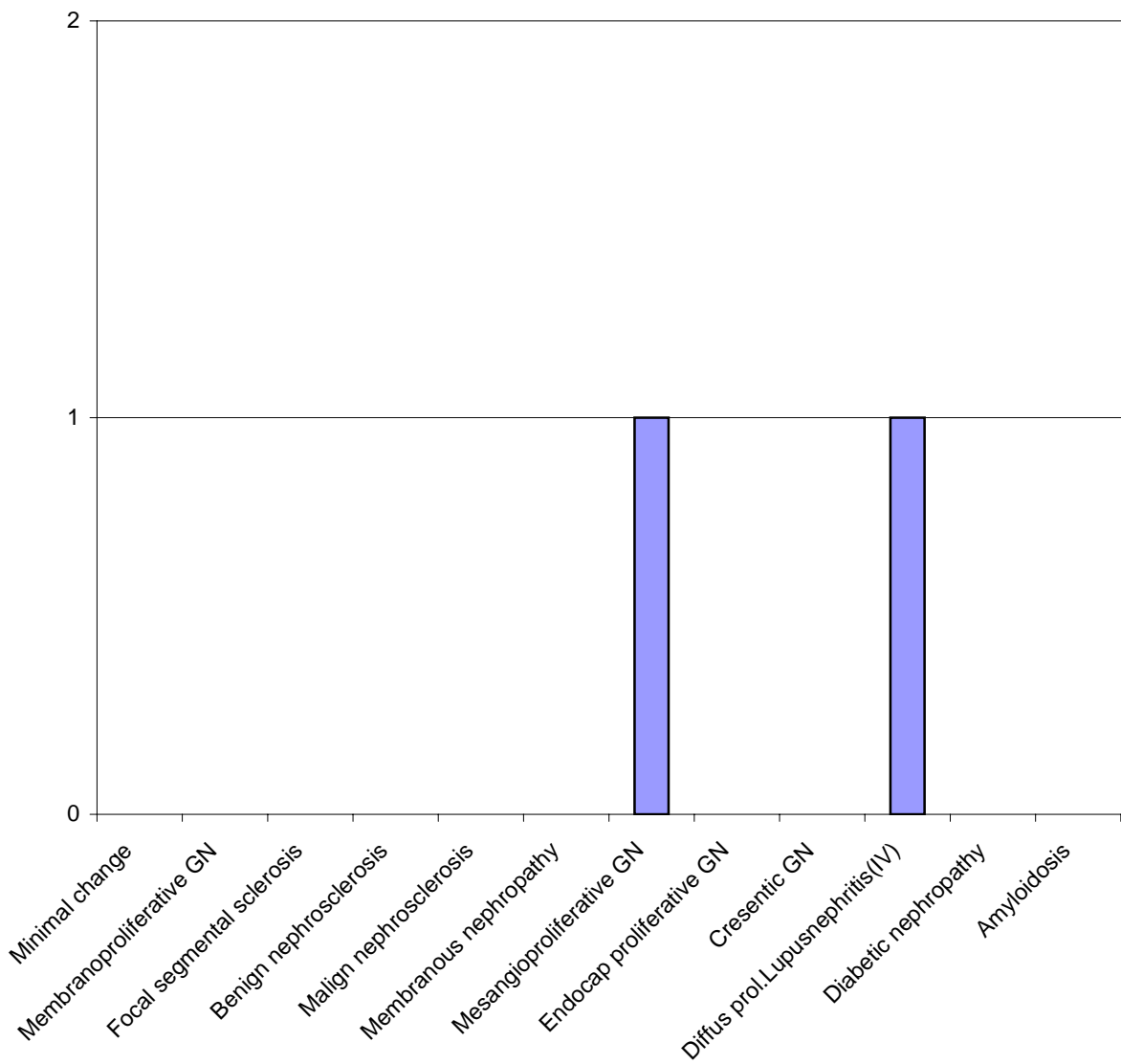
Morphology	Number
Minimal change	11
Membranoproliferative GN	2
Focal segmental sclerosis	1
Benign nephrosclerosis	27
Malign nephrosclerosis	0
Membranous nephropathy	1
Mesangioproliferative GN	11
Endocap proliferative GN	1
Cresentic GN	6
Diffus prol.Lupusnephritis(IV)	0
Diabetic nephropathy	6
Amyloidosis	0

Morphology in patients with creatinine <200, 2007



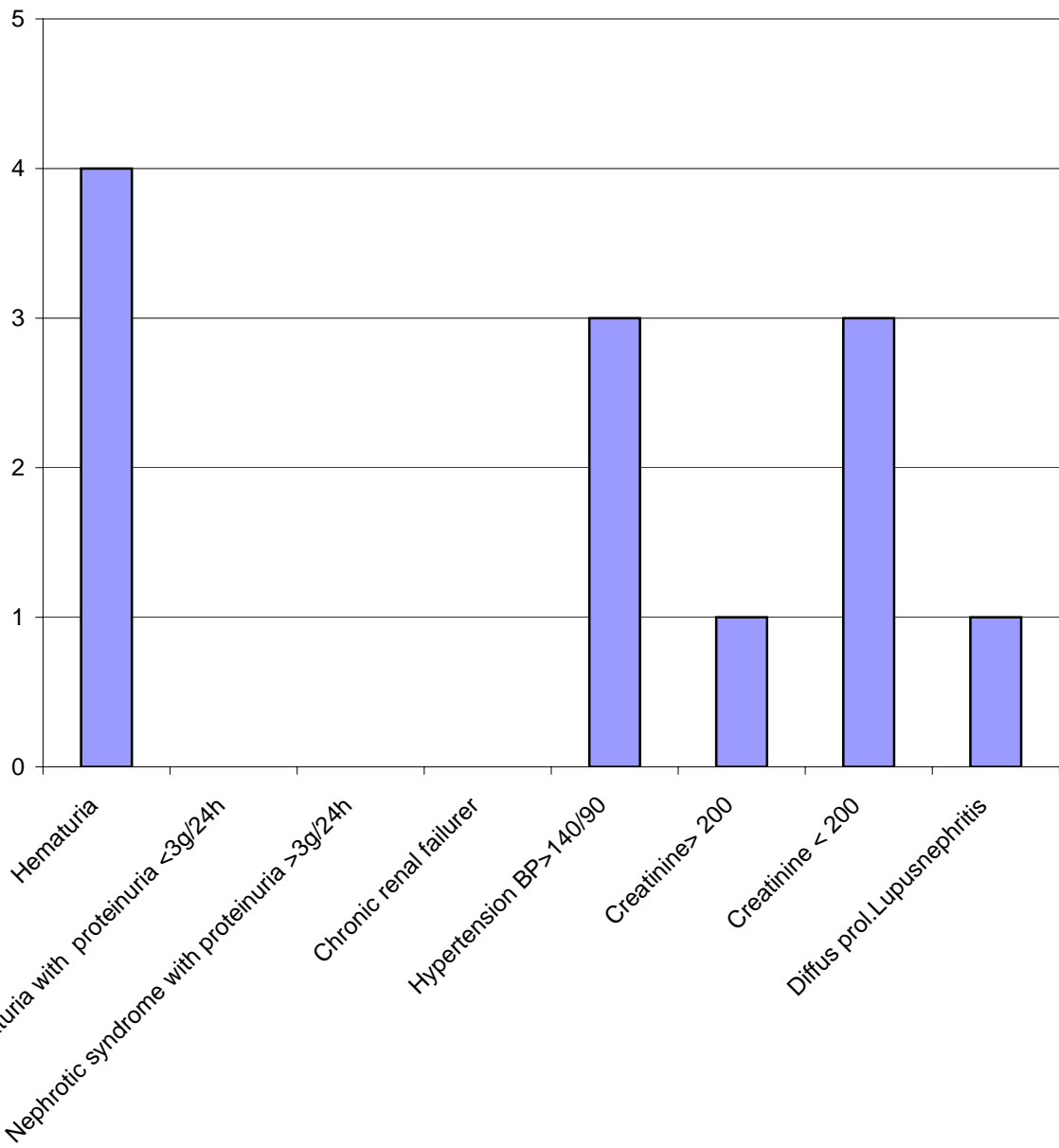
Morphology	Number
Minimal change	9
Membranoproliferative GN	2
Focal segmental sclerosis	11
Benign nephrosclerosis	55
Malign nephrosclerosis	0
Membranous nephropathy	13
Mesangioproliferative GN	40
Endocap proliferative GN	3
Crescentic GN	1
Diffus prol.Lupusnephritis(IV)	1
Diabetic nephropathy	7
Amyloidosis	2

Morphology in patients with SLE, 2007



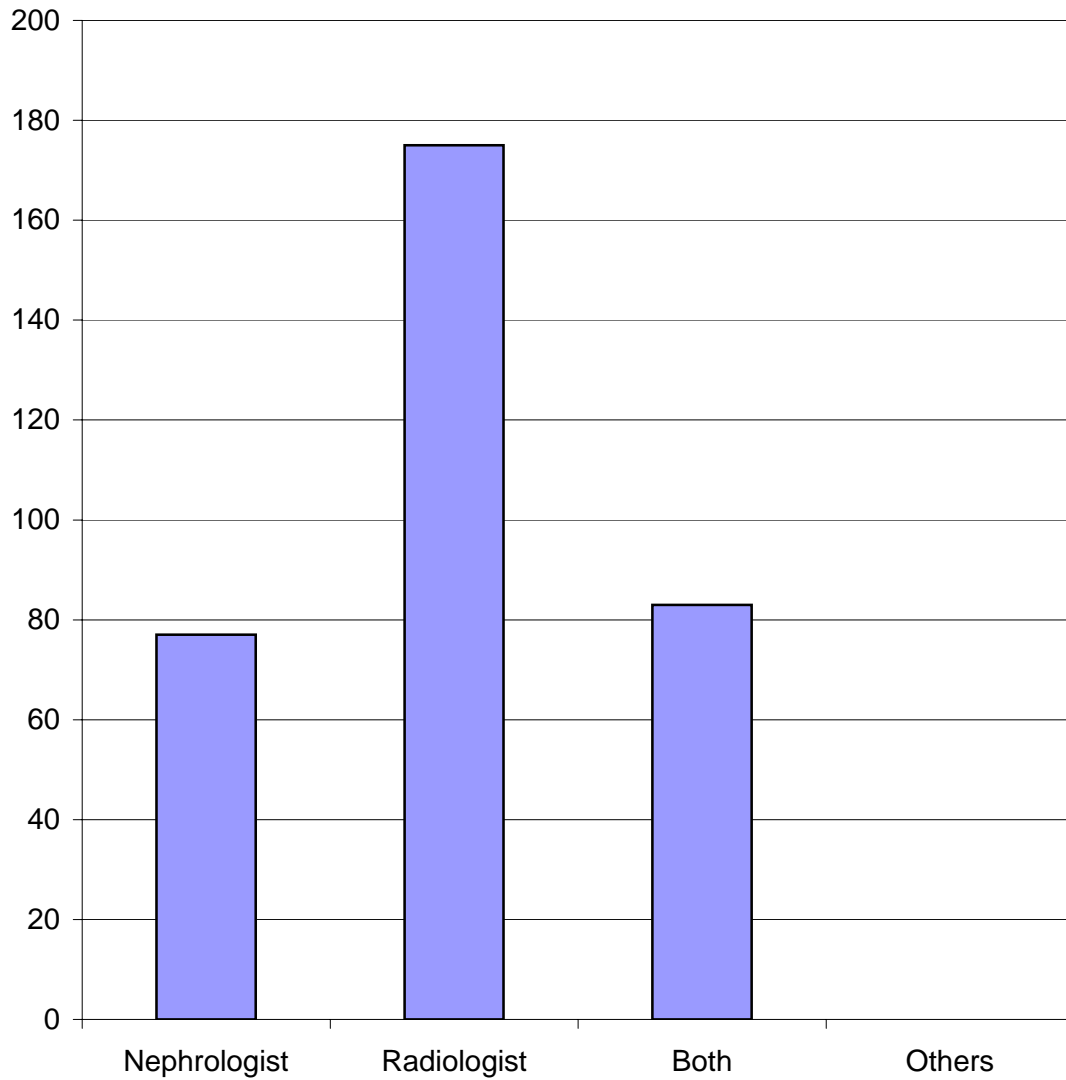
Morphology	Number
Minimal change	0
Membranoproliferative GN	0
Focal segmental sclerosis	0
Benign nephrosclerosis	0
Malign nephrosclerosis	0
Membranous nephropathy	0
Mesangioproliferative GN	1
Endocap proliferative GN	0
Crescentic GN	0
Diffus prol. Lupusnephritis(IV)	1
Diabetic nephropathy	0
Amyloidosis	0

SLE based on clinical form information and on Diffus prol. Lupus nephritis, 2007



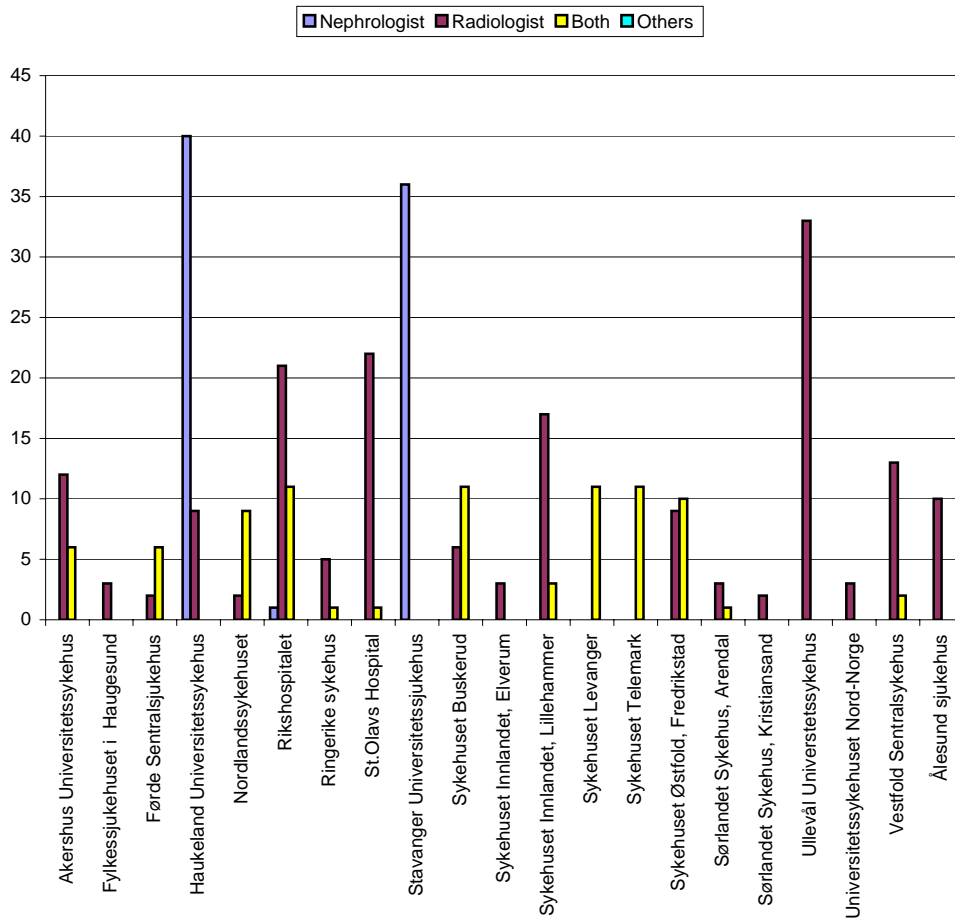
Clinical indication	Number
Hematuria	4
Hematuria with proteinuria <3g/24h	0
Nephrotic syndrome with proteinuria >3g/24h	0
Chronic renal failurer	0
Hypertension BP>140/90	3
Creatinine> 200	1
Creatinine < 200	3
Diffus prol.Lupusnephritis	1

Those who performed the renal biopsy in Norway 2007



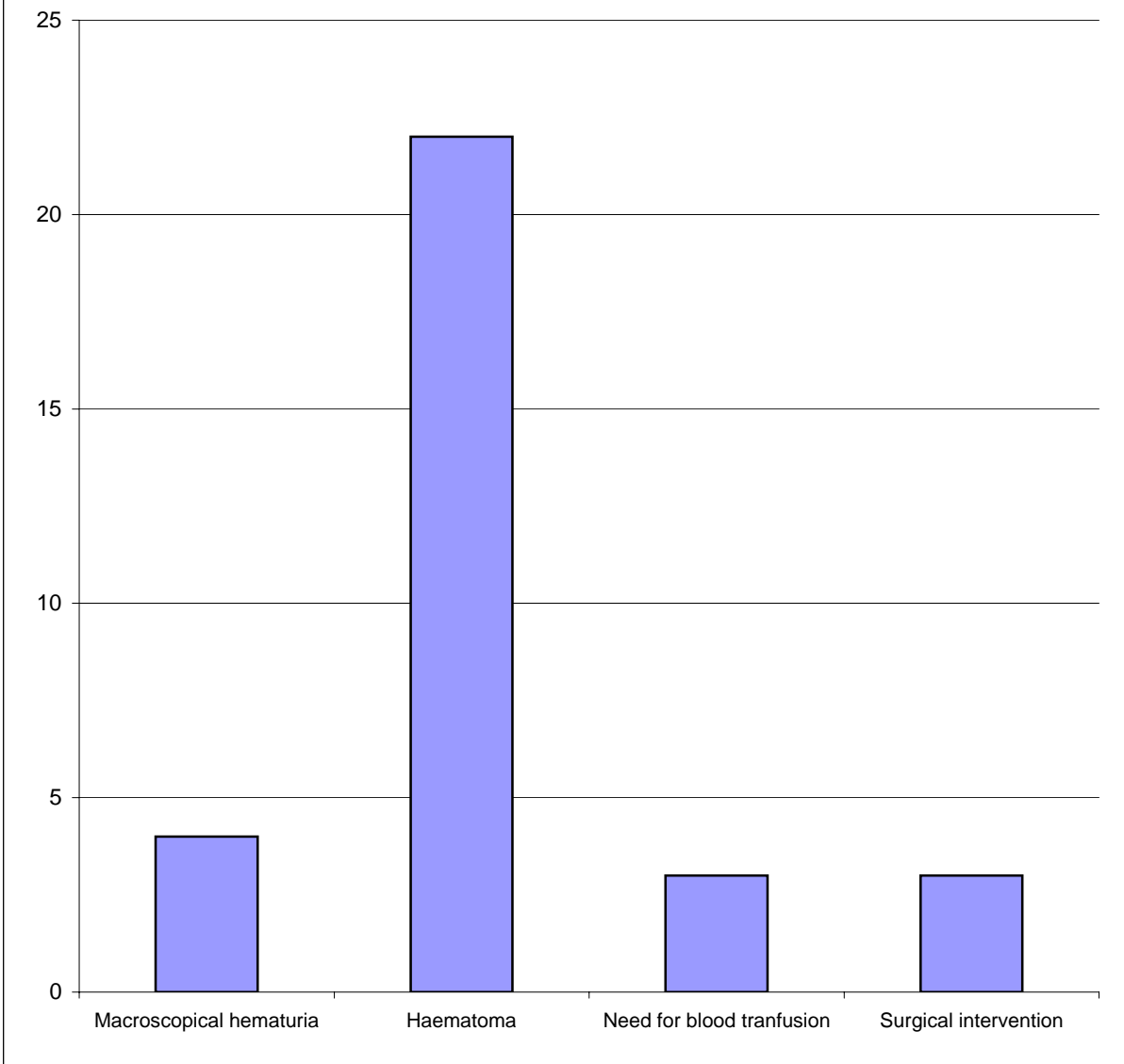
Performed the biopsy	Number
Nephrologist	77
Radiologist	175
Both	83
Others	0

Those who performed the renal biopsy at different hospitals, 2007



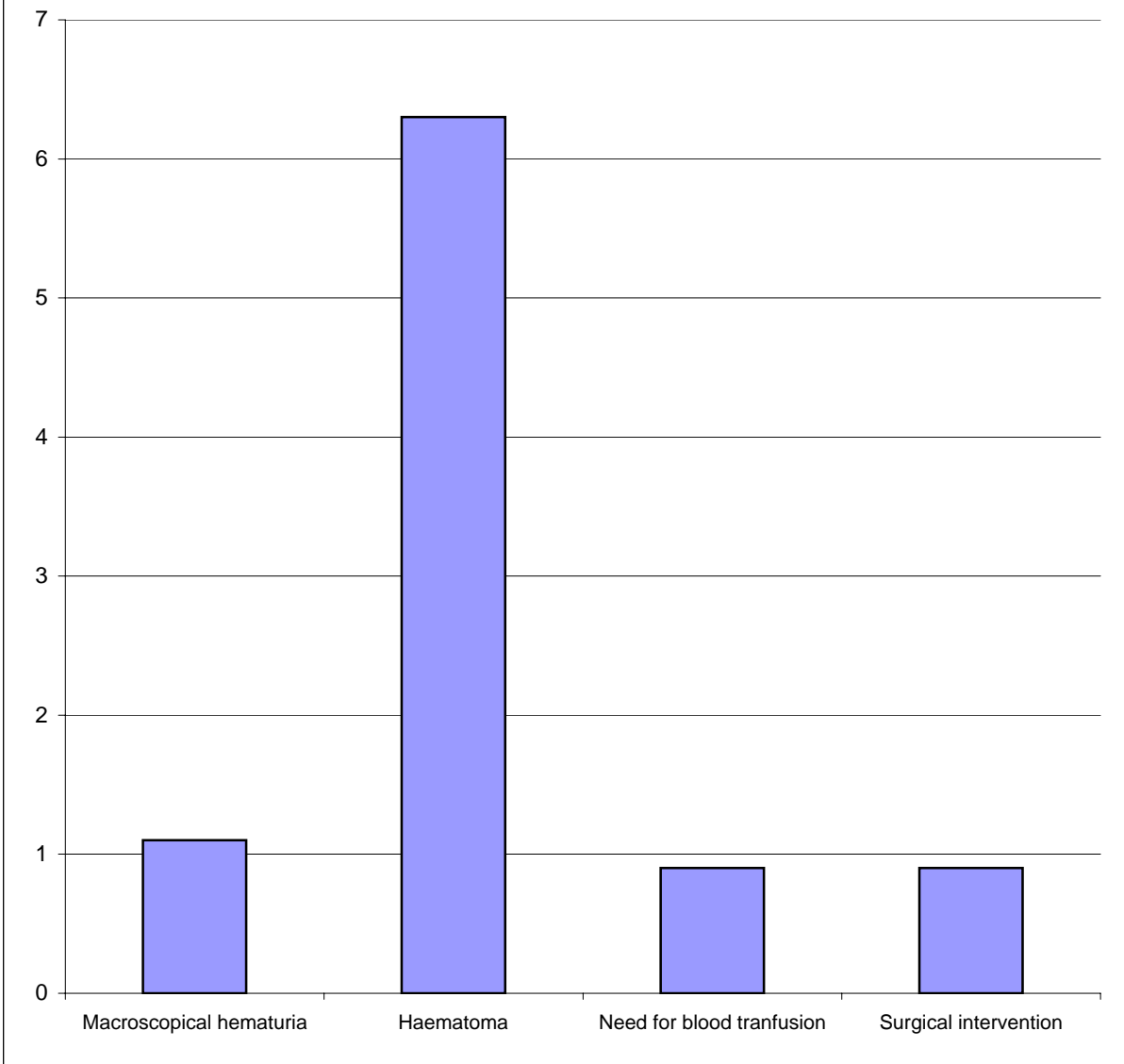
Hospital	Nephrologist	Radiologist	Both	Others
Akershus Universitetssykehus	0	12	6	0
Fylkessjukehuset i Haugesund	0	3	0	0
Førde Sentralsjukehus	0	2	6	0
Haukeland Universitetssykehus	40	9	0	0
Nordlandssykehuset	0	2	9	0
Rikshospitalet	1	21	11	0
Ringerike sykehus	0	5	1	0
St.Olavs Hospital	0	22	1	0
Stavanger Universitetssjukehus	36	0	0	0
Sykehuset Buskerud	0	6	11	0
Sykehuset Innlandet, Elverum	0	3	0	0
Sykehuset Innlandet, Lillehammer	0	17	3	0
Sykehuset Levanger	0	0	11	0
Sykehuset Telemark	0	0	11	0
Sykehuset Østfold, Fredrikstad	0	9	10	0
Sørlandet Sykehus, Arendal	0	3	1	0
Sørlandet Sykehus, Kristiansand	0	2	0	0
Ullevål Universtetssykehus	0	33	0	0
Universitetssykehuset Nord-Norge	0	3	0	0
Vestfold Sentralsykehus	0	13	2	0
Ålesund sjukehus	0	10	0	0
Total	77	175	83	0

Complications to renal biopsies, 2007



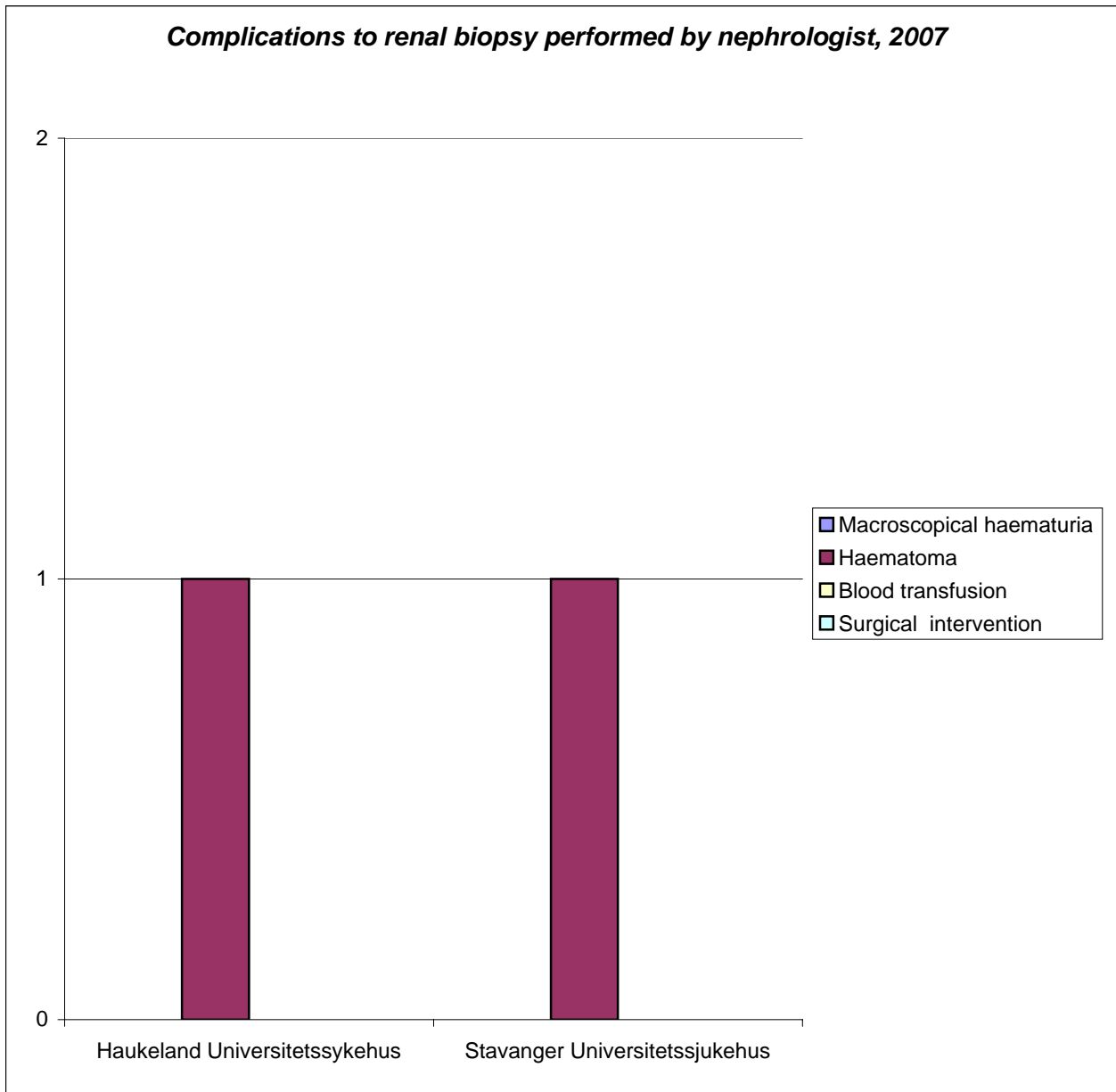
Macroscopical hematuria	4
Haematoma	22
Need for blood tranfusion	3
Surgical intervention	3

Complication to renal biopsies (%), 2007



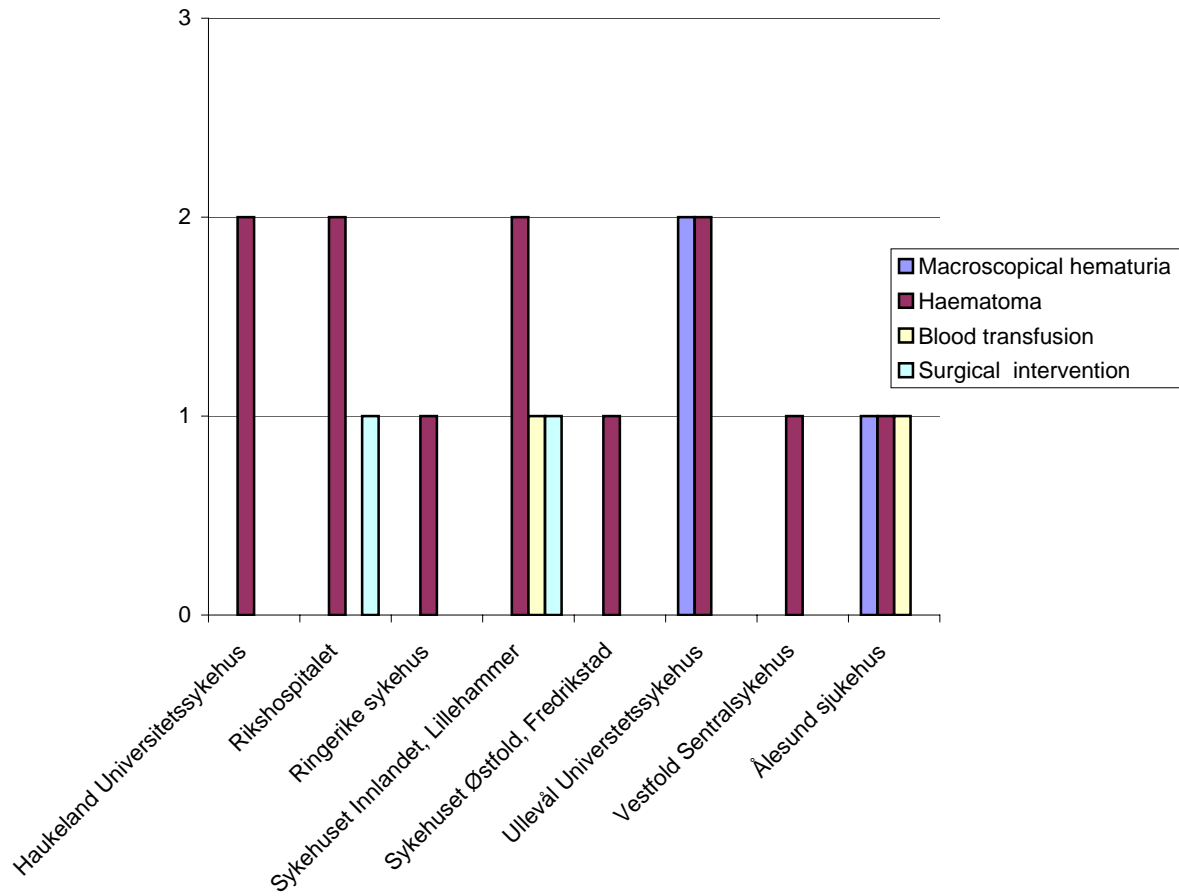
Macroscopical hematuria	1,1
Haematoma	6,3
Need for blood tranfusion	0,9
Surgical intervention	0,9

Complications to renal biopsy performed by nephrologist, 2007



Hospital	Macroscopical haematuria	Haematoma	Blood transfusion	Surgical intervention
Haukeland Universitetssykehus	0	1	0	0
Stavanger Universitetssjukehus	0	1	0	0
Total	0	2	0	0

Complications to renal biopsy performed by radiologist, 2007



Hospital	Macroscopical hematuria	Haematoma	Blood transfusion	Surgical intervention
Haukeland Universitetssykehus	0	2	0	0
Rikshospitalet	0	2	0	1
Ringerike sykehus	0	1	0	0
Sykehuset Innlandet, Lillehammer	0	2	1	1
Sykehuset Østfold, Fredrikstad	0	1	0	0
Ullevål Universtetssykehus	2	2	0	0
Vestfold Sentralsykehus	0	1	0	0
Ålesund sjukehus	1	1	1	0
Total	3	12	2	2