Comparison of outcome of recurrent versus first non ST-elevation myocardial infarction

(national Israel surveys ACSIS 2000-2010)

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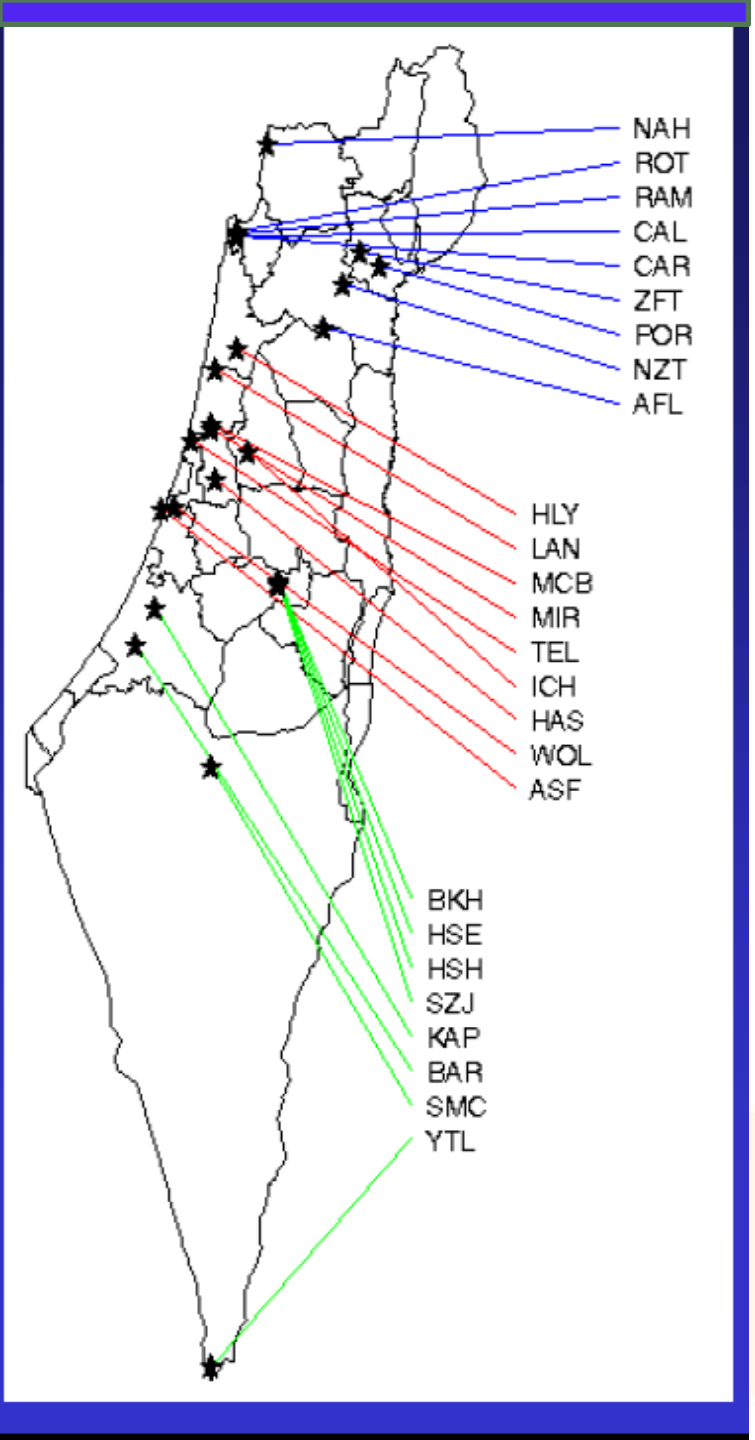
Yaniv Levi, Shlomi Matezki, Shmuel Gottlieb, for the Working Group on Intensive Cardiac Care,

Israel Heart Society and the ACSIS investigators.



ACSIS

Acute Coronary Survey in ISrael

המרכז הרפואי הלל יפה

- **Bimonthly biannual national survey (1-2, 2-3, 3-4)**
- **Since 1990 (BIP study team)**
- **In the 90's Israeli Thrombolytic Survey**
- **Since 2000 all ACS patients - ACSIS**
- **All 26 public hospital in Israel (23 cath labs)**
- **Only CCU/Cardiology departments**
- **In 2000 & 2010 also Internal Medicine**

ACS Pts hospitalized in CCU/Cardiology for 2 mths

המרכז הרפואי הלל יפה

	2000	2002*	2004	2006	2008	2010	All
ACS	**1,794**	**2,048**	**2,094**	**2,075**	**1,763**	**1,781**	**11,555**
Acute MI	1,004	1,201	1,333	1,338	1,254	1,374	**7504**
STEMI	**708** **71%**	**649** **54%**	**675** **51%**	**599** **45%**	**589** **47%**	**688** **50%**	**3908** **52%**
Non-STEMI	**296** **29%**	**552** **46%**	**658** **49%**	**739** **55%**	**665** **53%**	**686** **50%**	**3596** **48%**

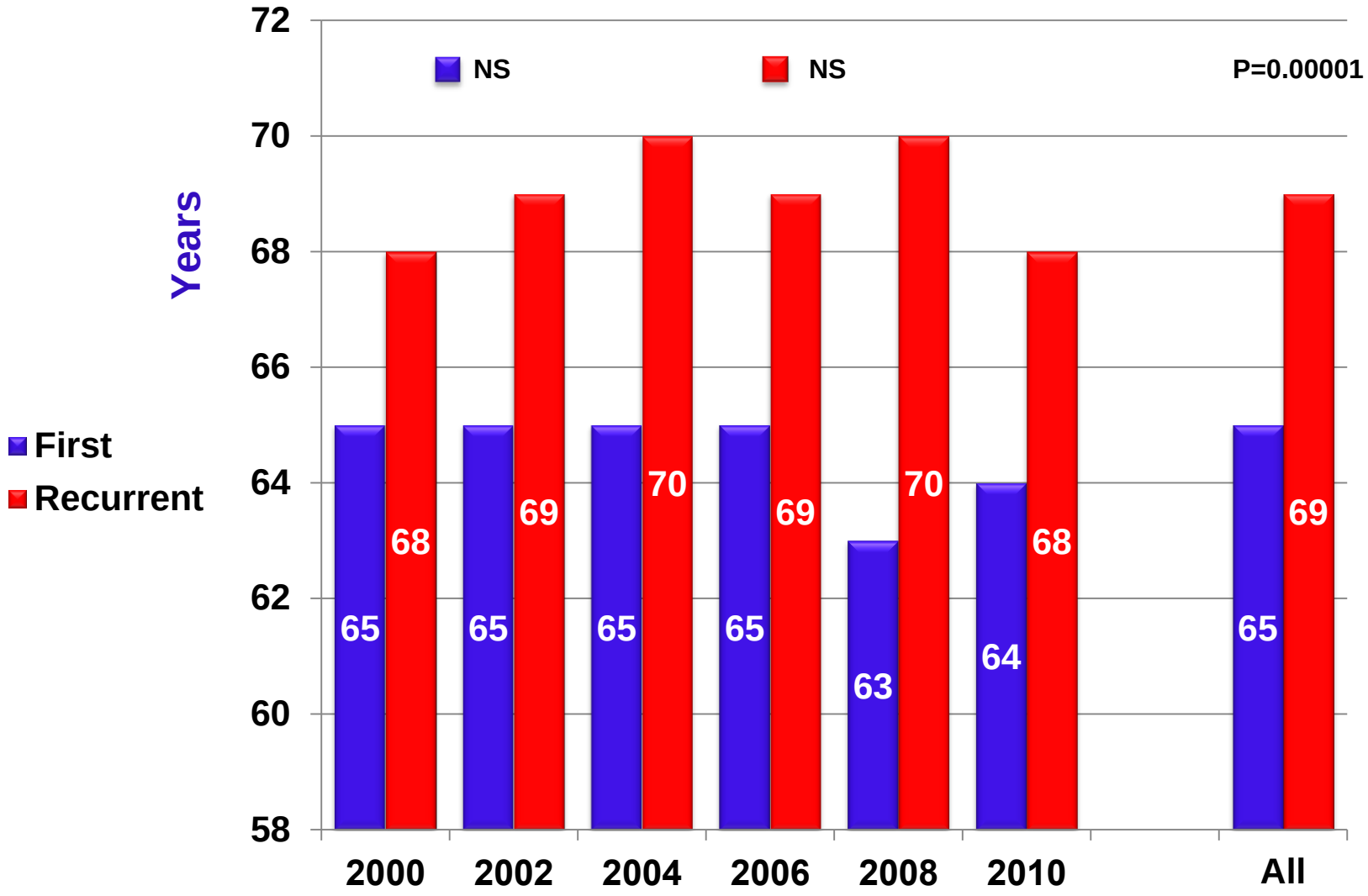
*** New MI definition - Troponin**

NSTEMI 2000 - 2010

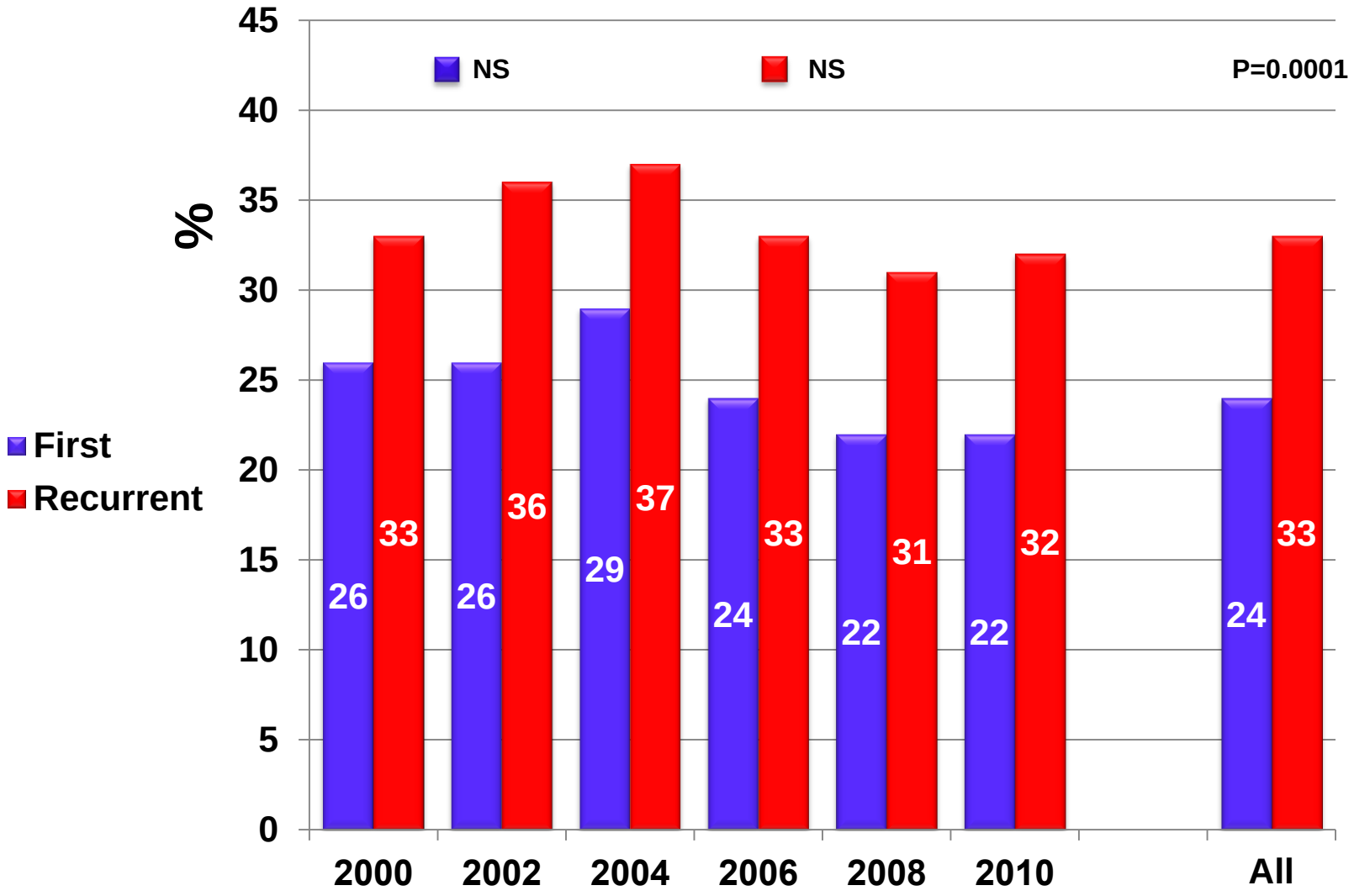
המרכז הרפואי הלל יפה

	2000	2002*	2004	2006	2008	2010	All
First	420 61%	434 65%	466 63%	434 66%	364 66%	186 63%	2304 64%
Recurrent	266 39%	231 35%	273 37%	224 34%	188 34%	110 37%	1292 36%
All	686	665	739	658	552	296	3596

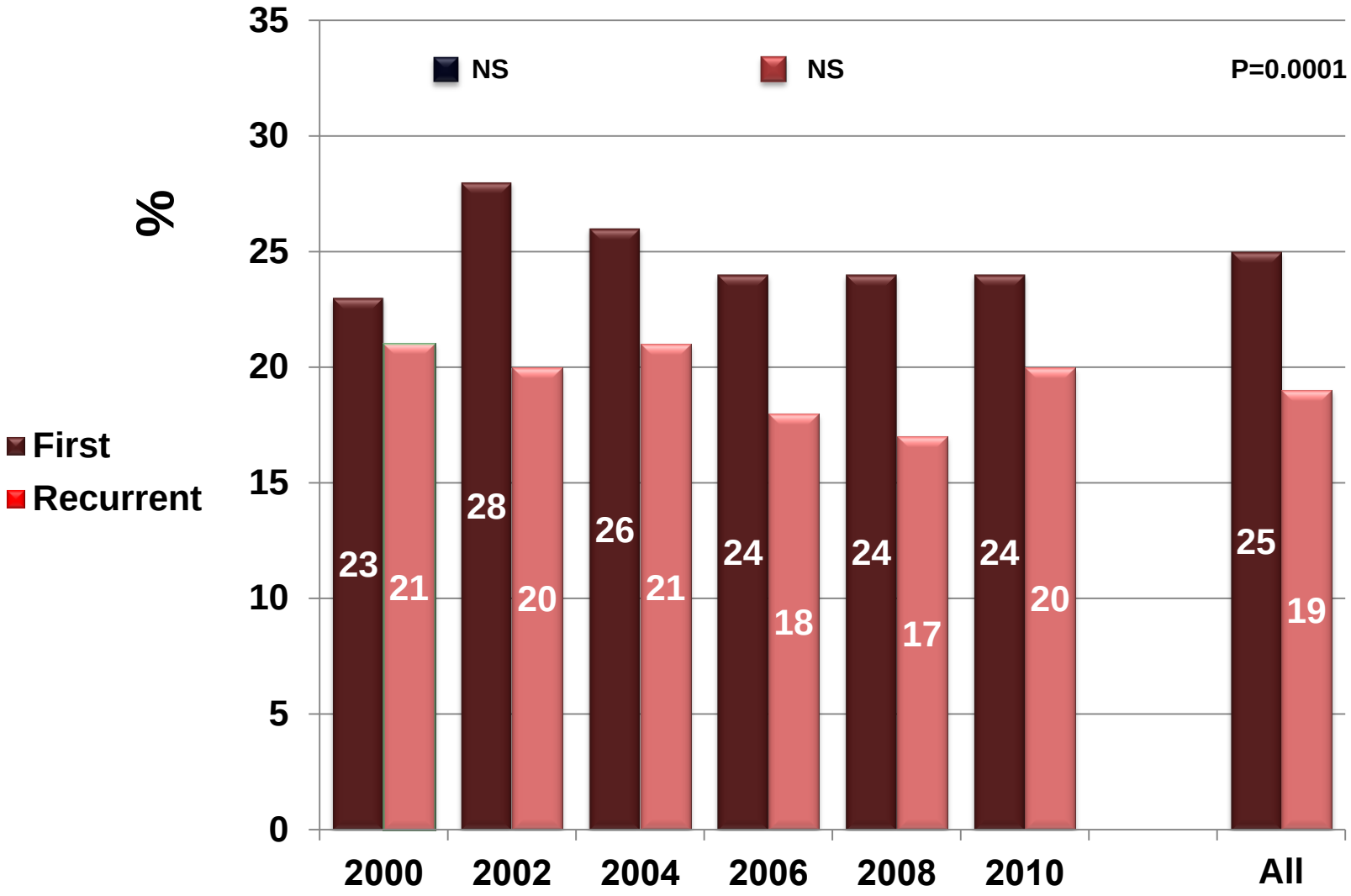
ACSIS 2000–2010 NSTEMI – Age



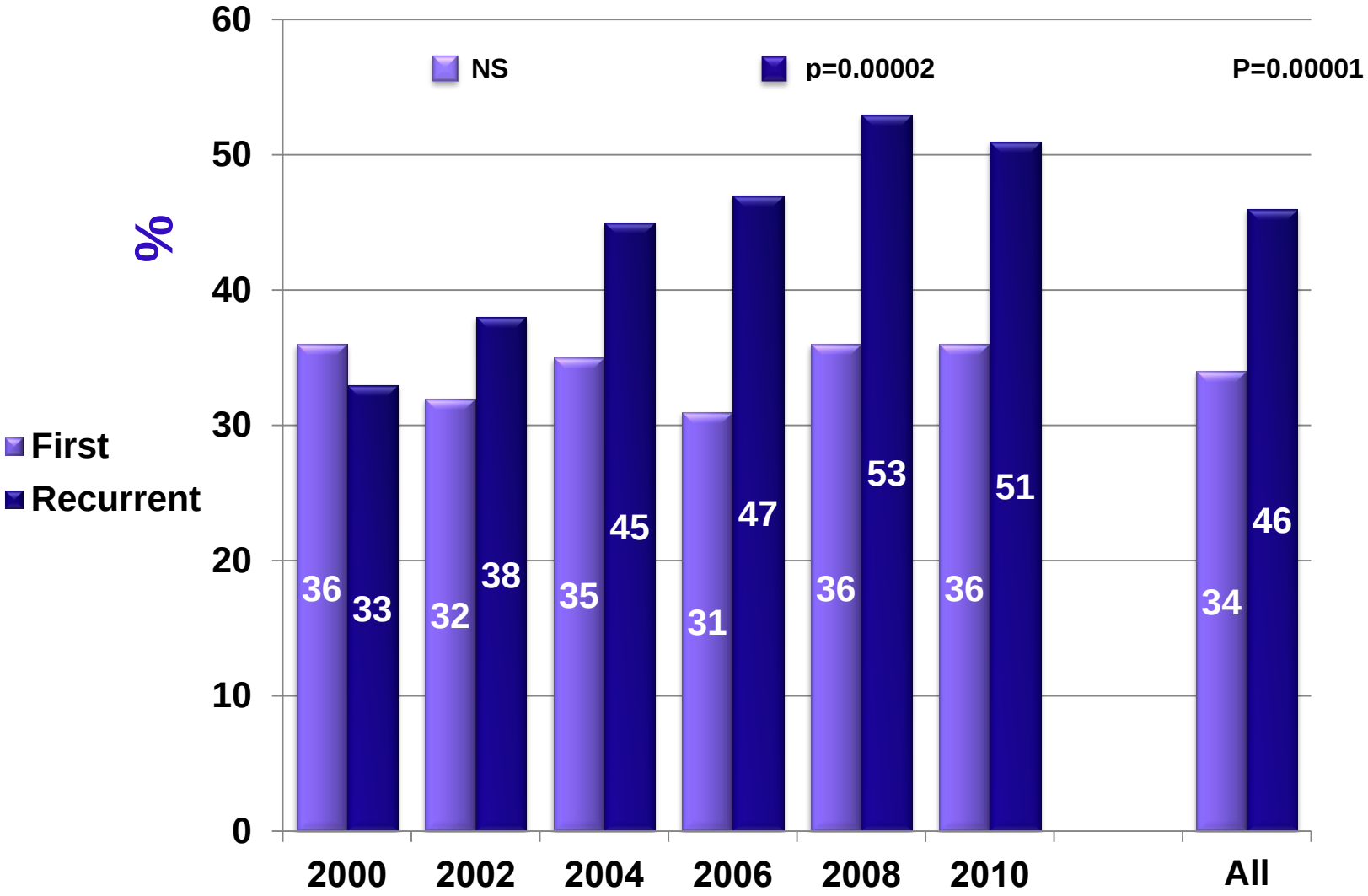
ACSIS 2000–2010 NSTEMI – Age > 75 yrs (%)



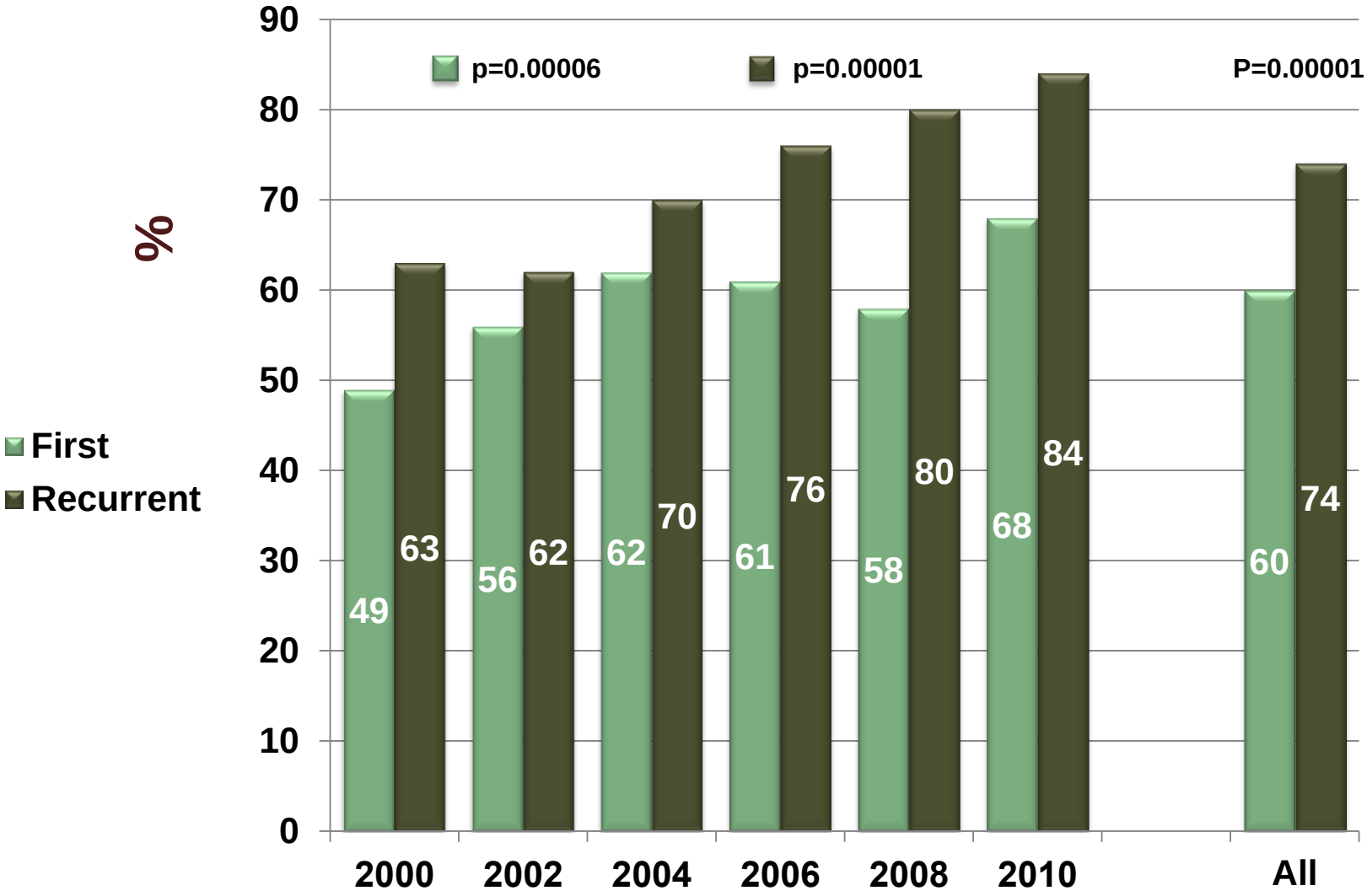
ACSIS 2000–2010 NSTEMI – Women (%)



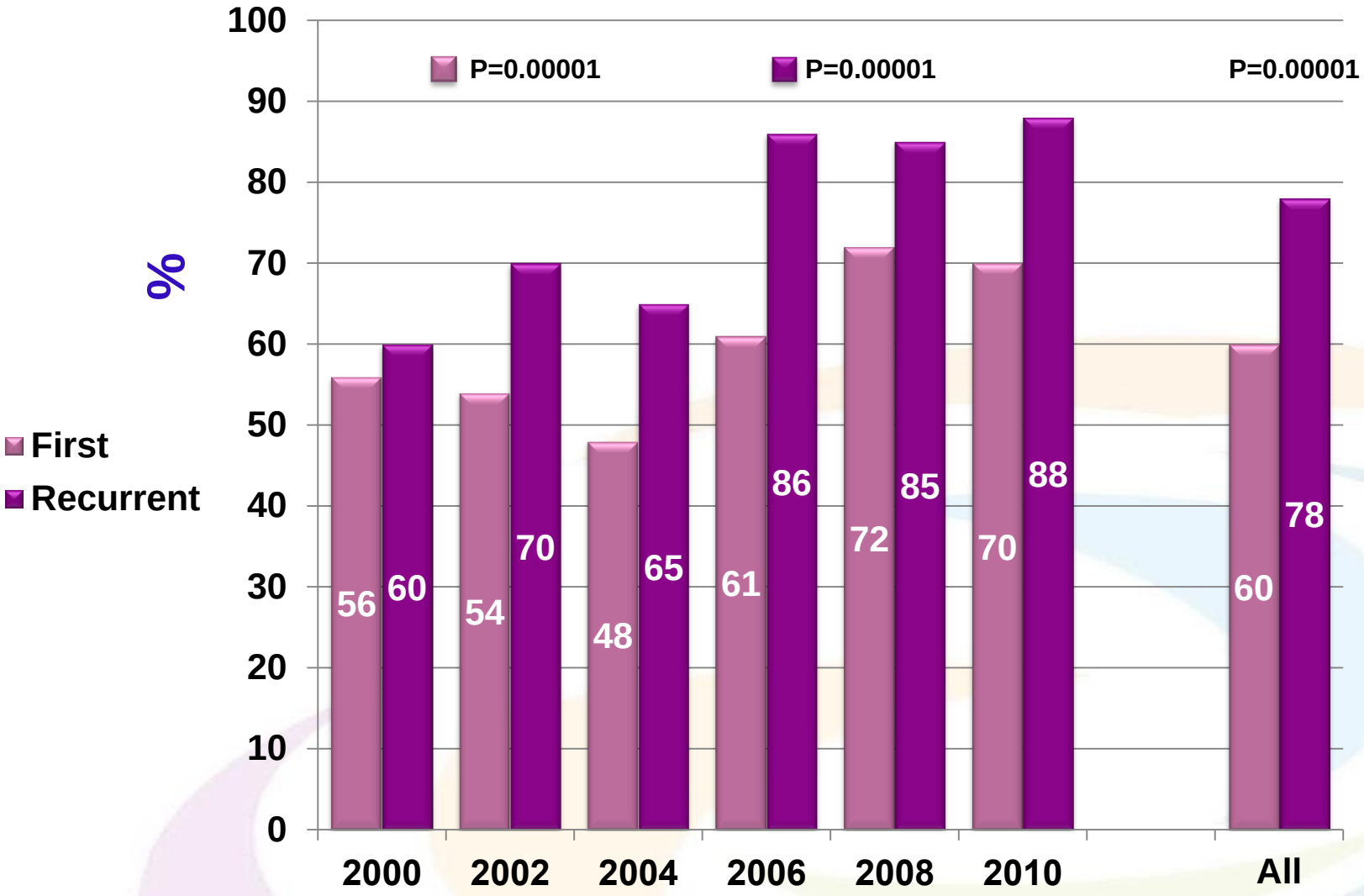
ACSIS 2000–2010 NSTEMI – Diabetes (%)



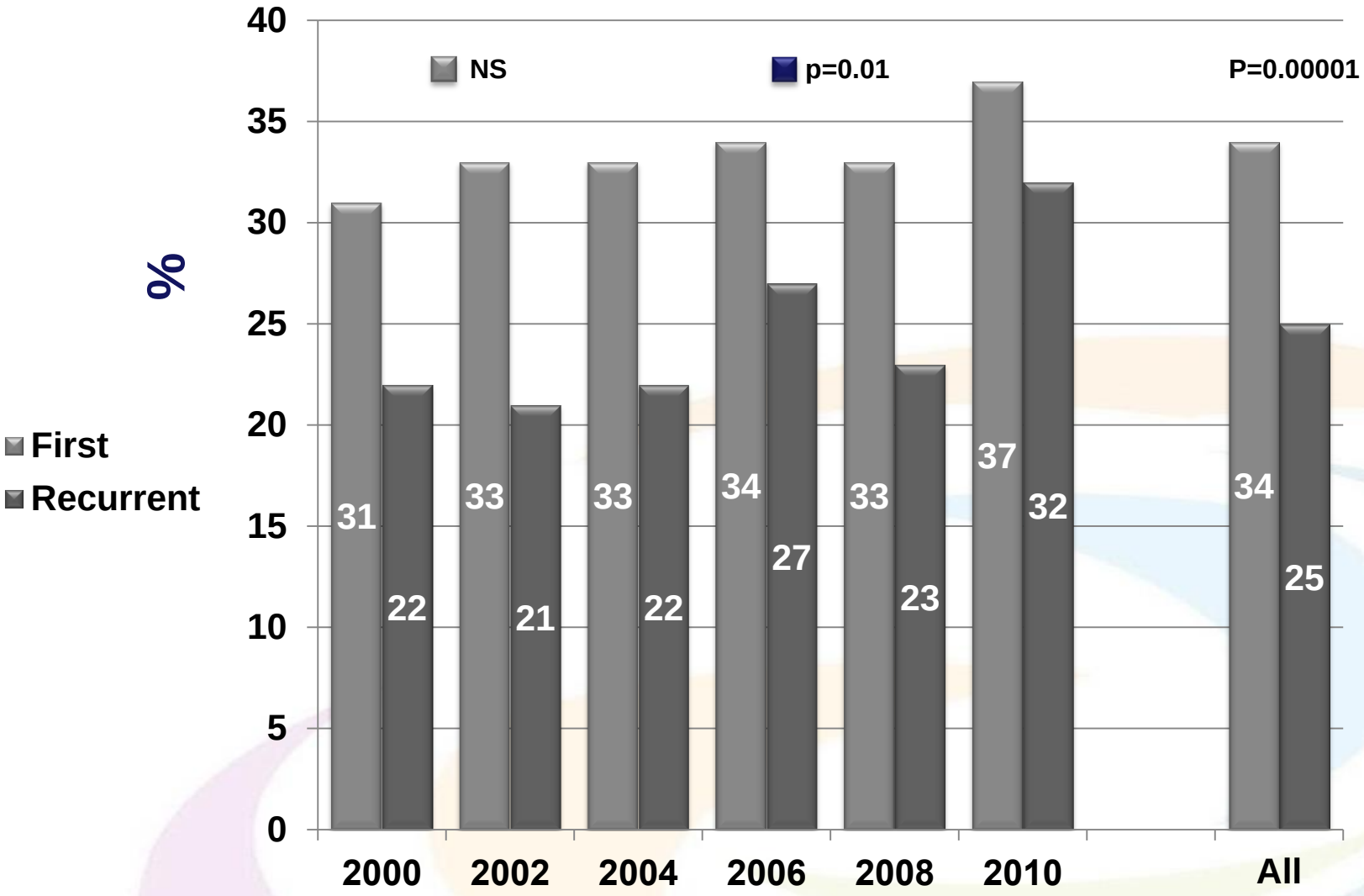
ACSIS 2000–2010 NSTEMI – Hypertension (%)



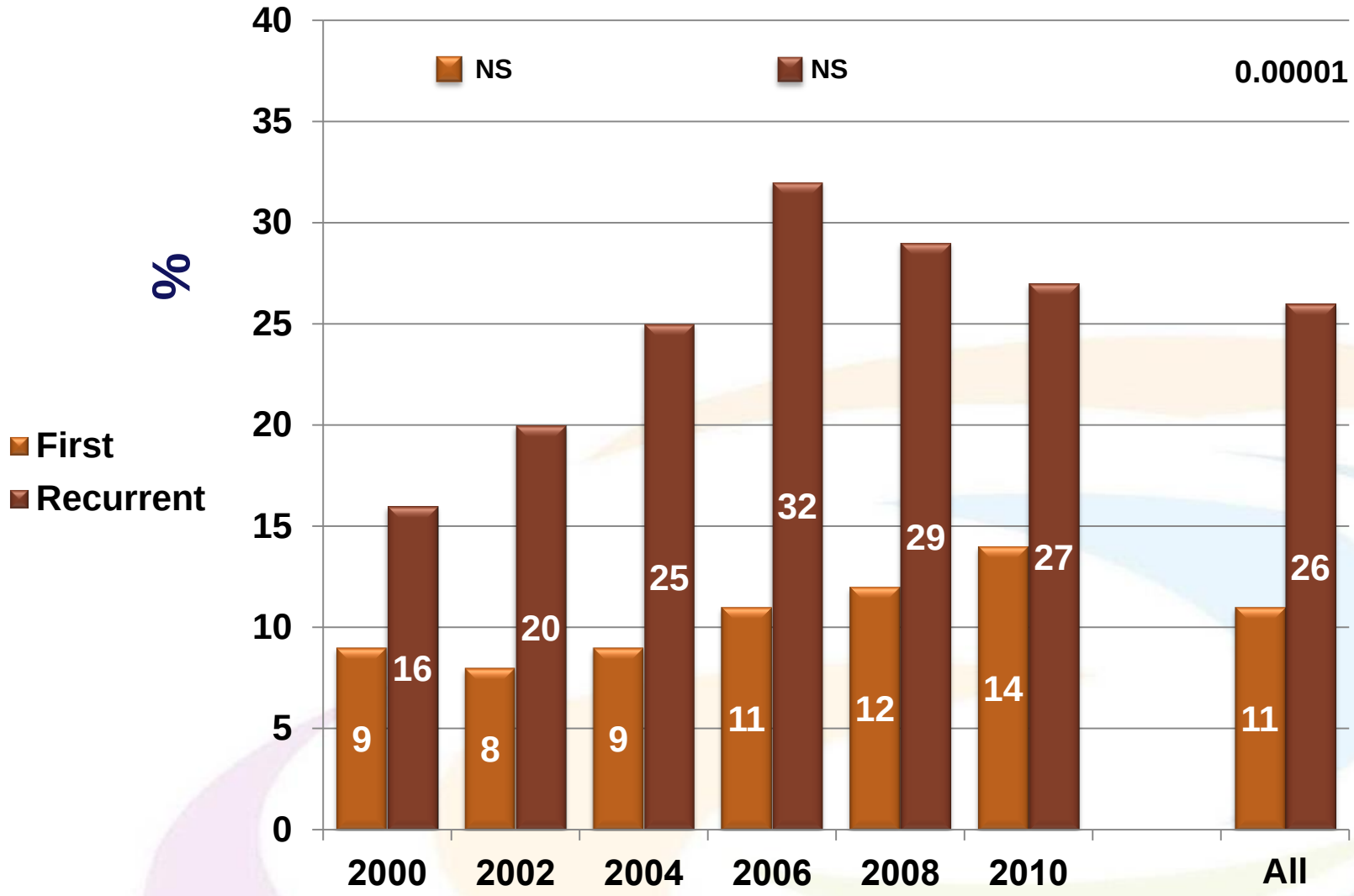
ACSIS 2000–2010 NSTEMI – Dyslipidemia (%)



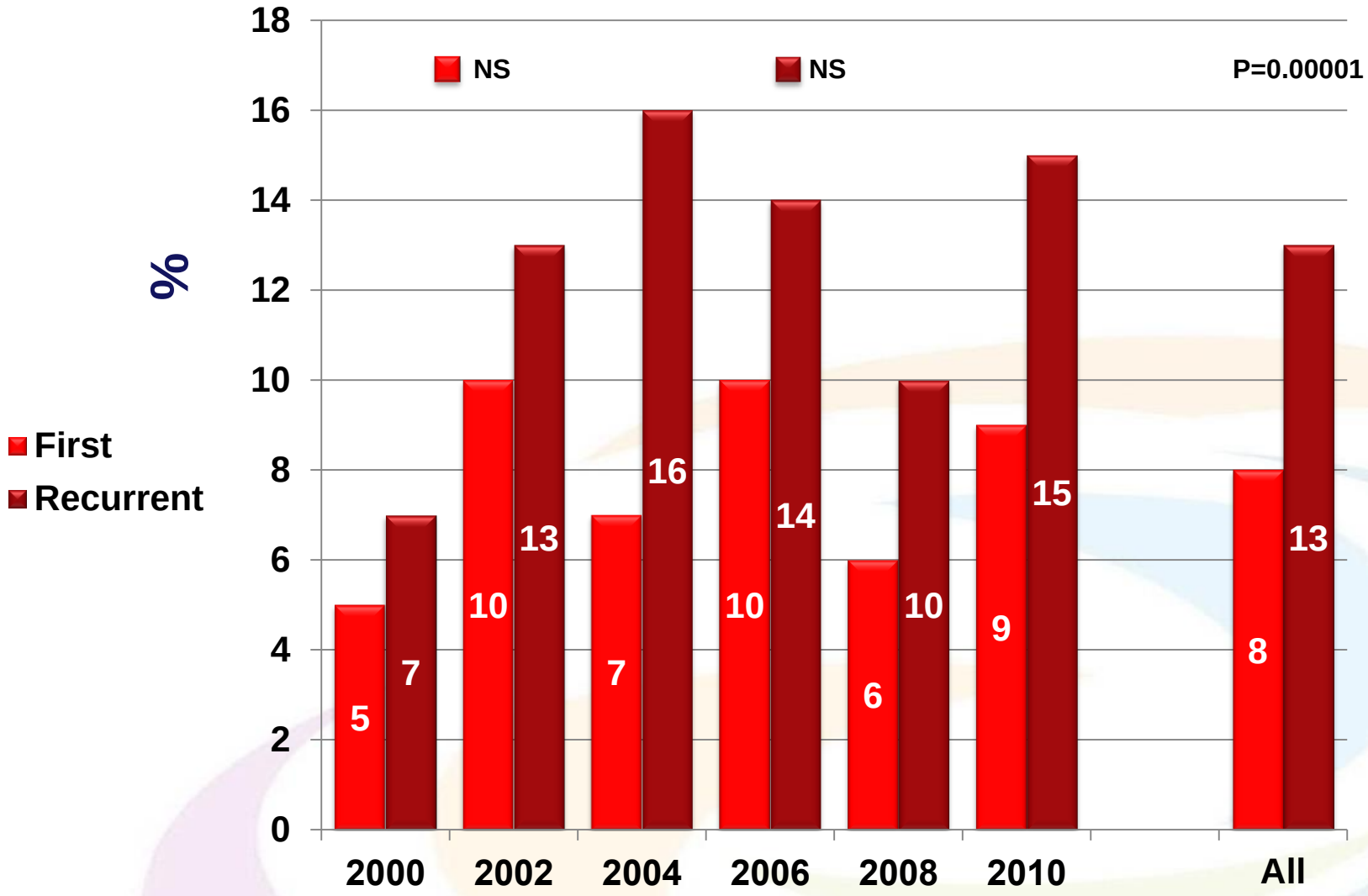
ACSIS 2000–2010 NSTEMI – Current Smoker (%)



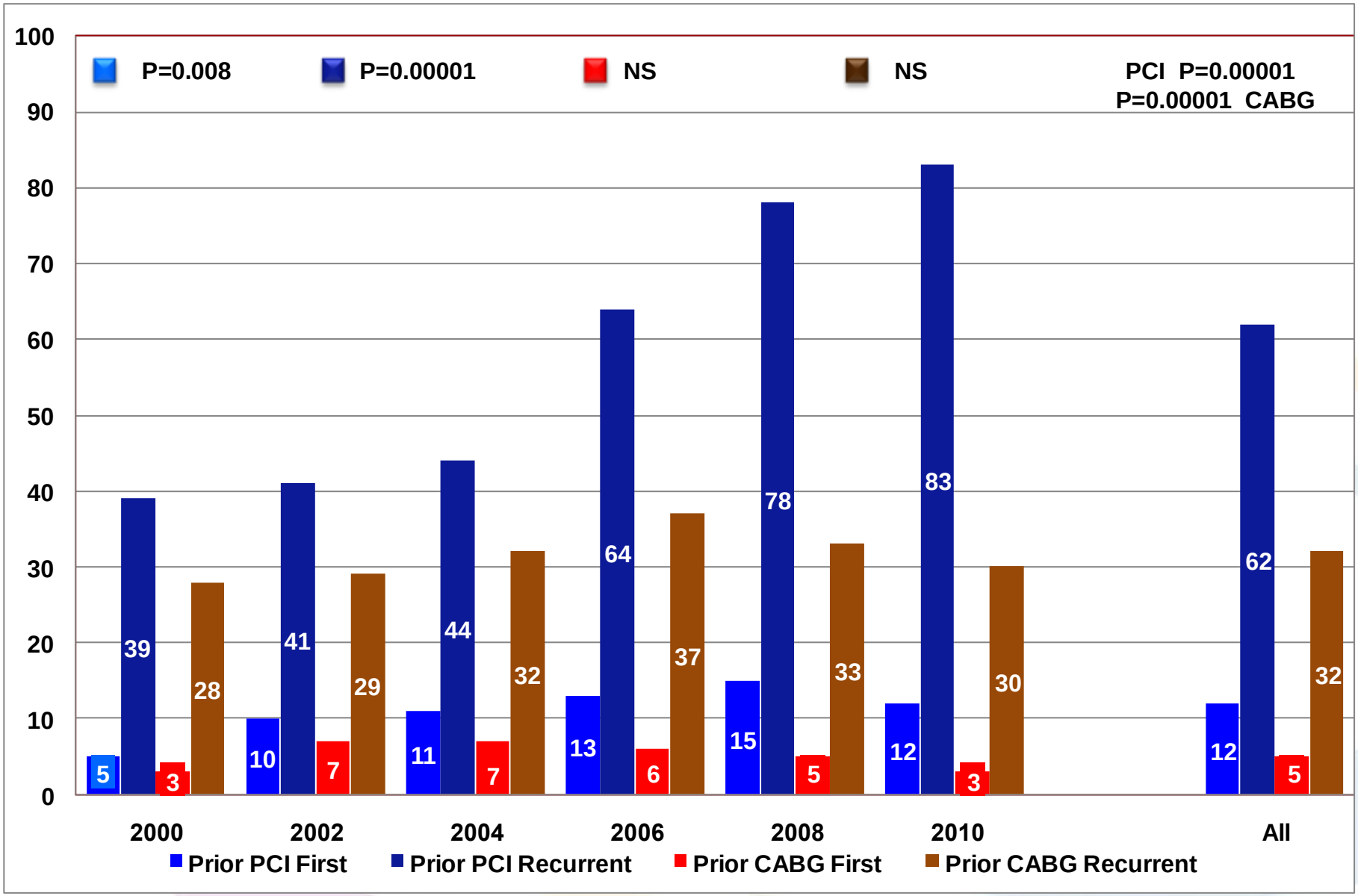
ACSIS 2000–2010 NSTEMI – Chronic Renal Failure (%)



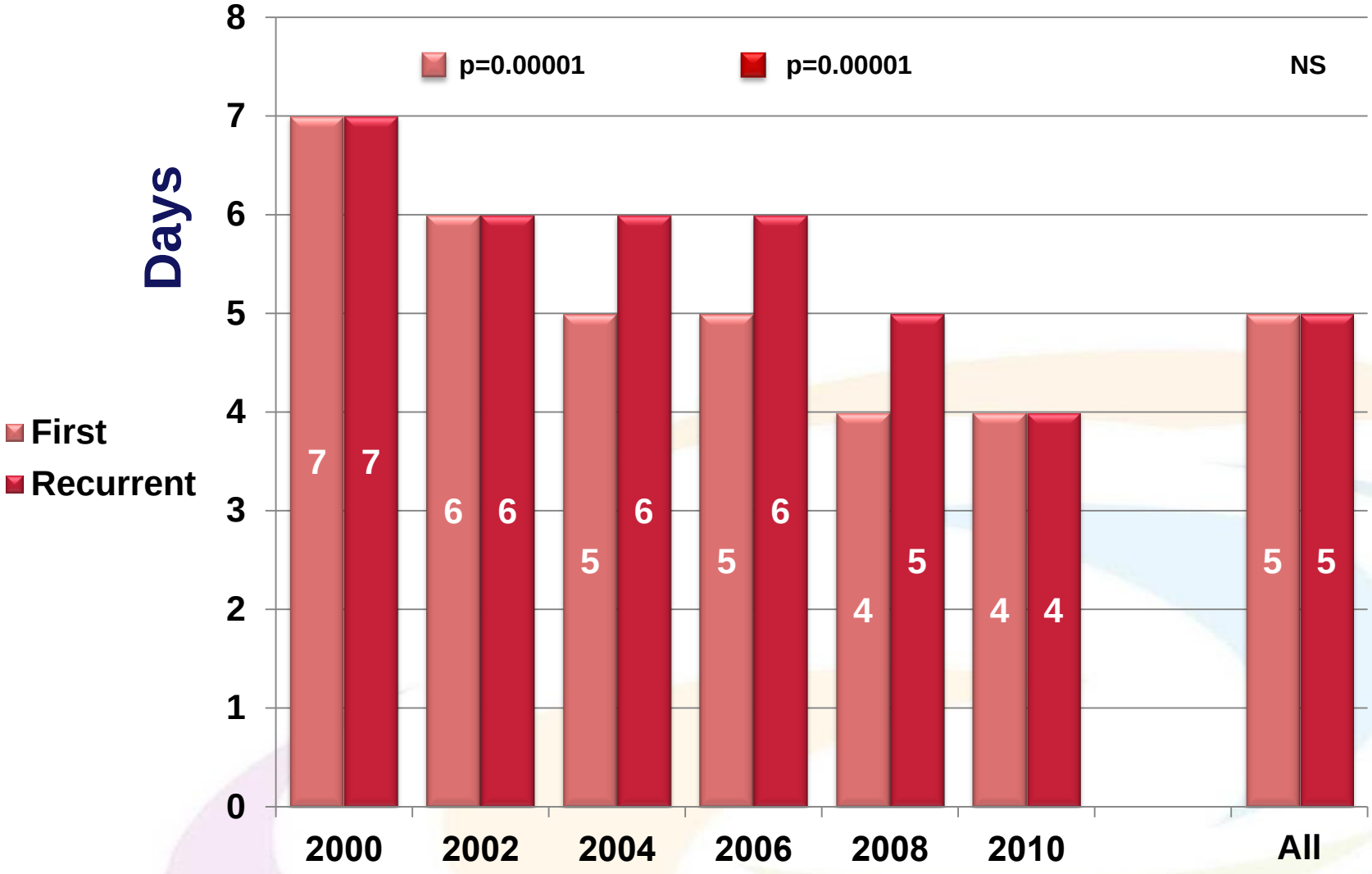
ACSIS 2000–2010 NSTEMI – S/P CVA (%)



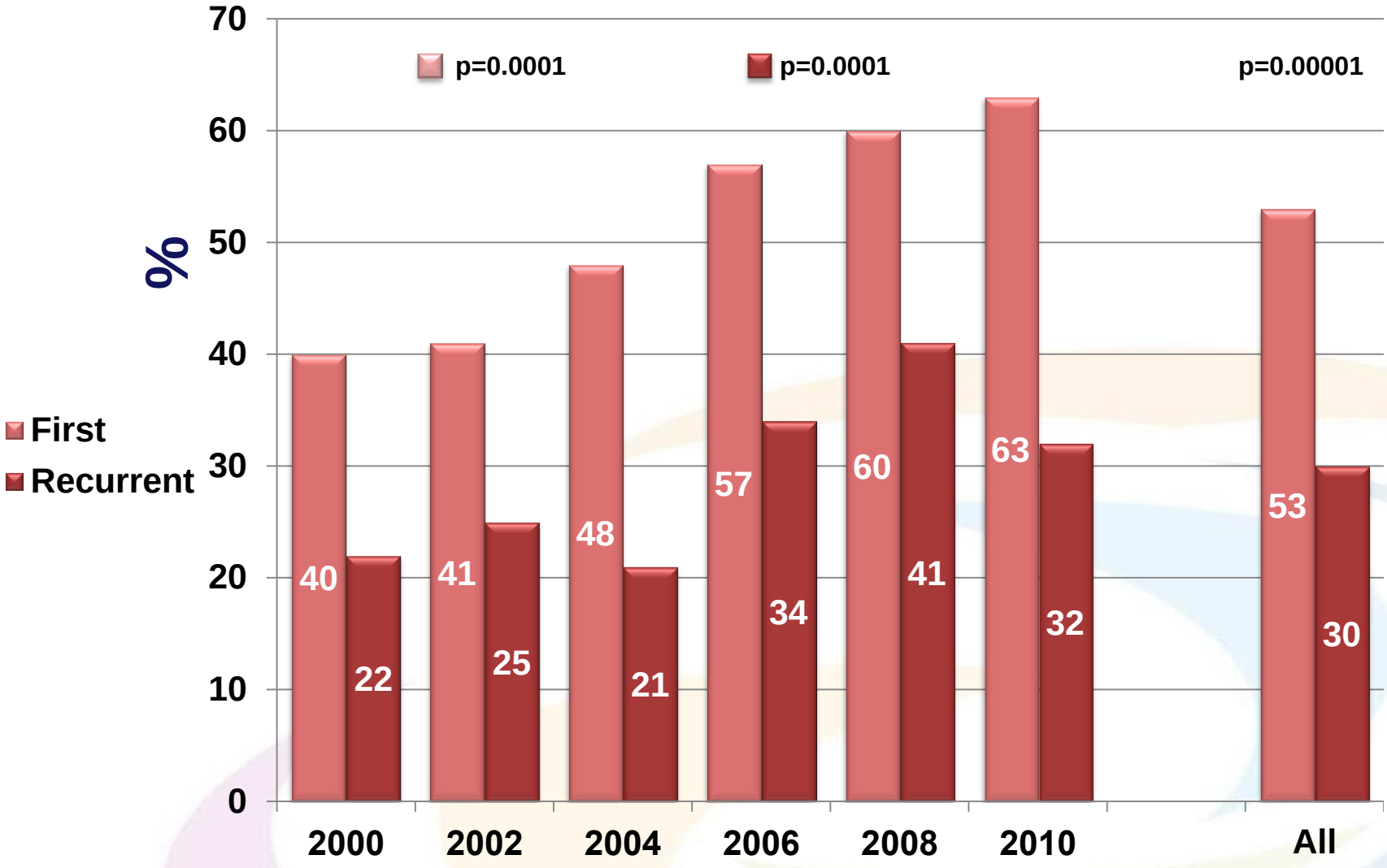
(%) ACSIS 2000–2010 NSTEMI – Prior Interventions



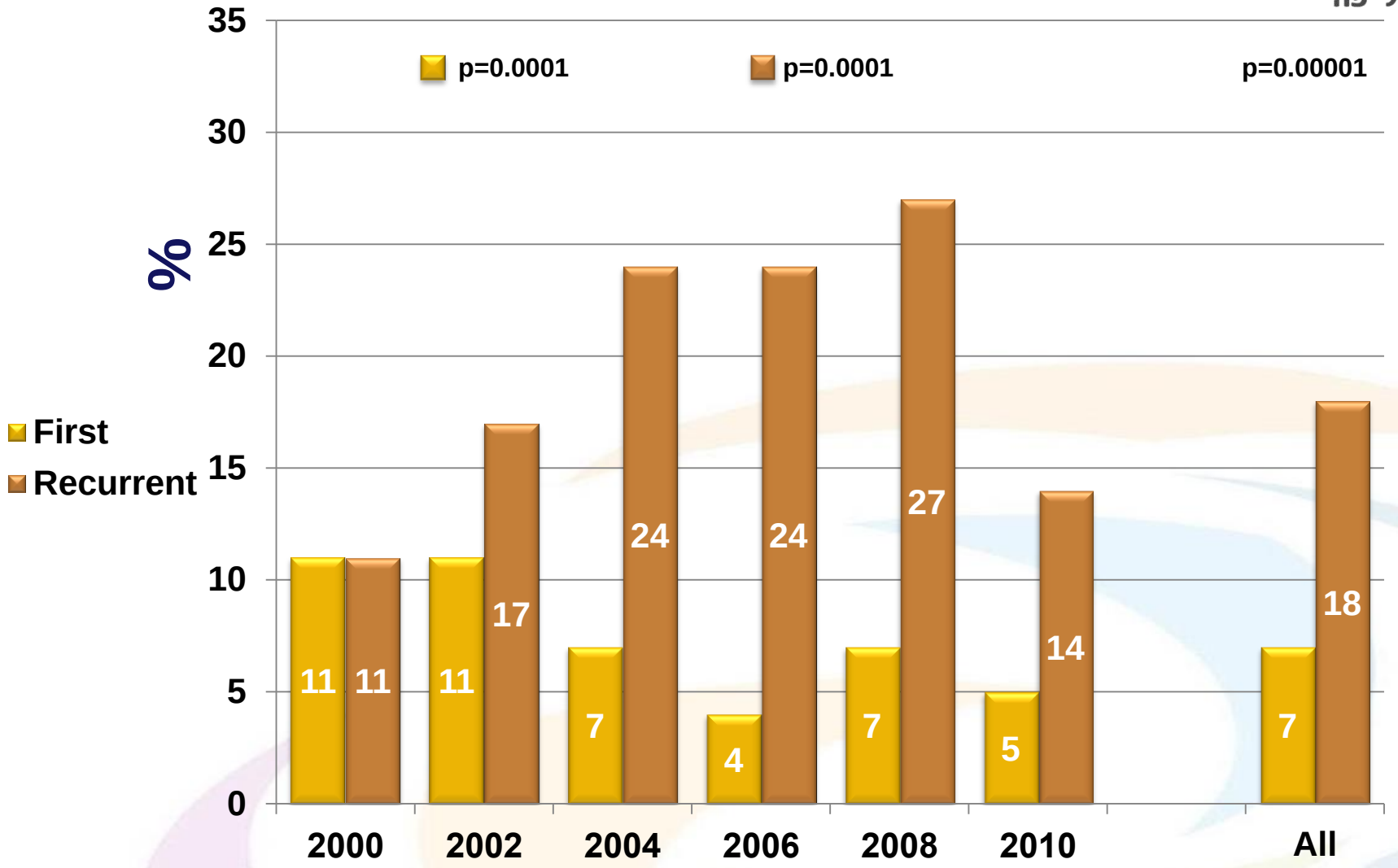
ACSIS 2000–2010 NSTEMI – Length of Hospitalization Median



ACSIS 2000–2010 NSTEMI – LVEF Normal (>50%)



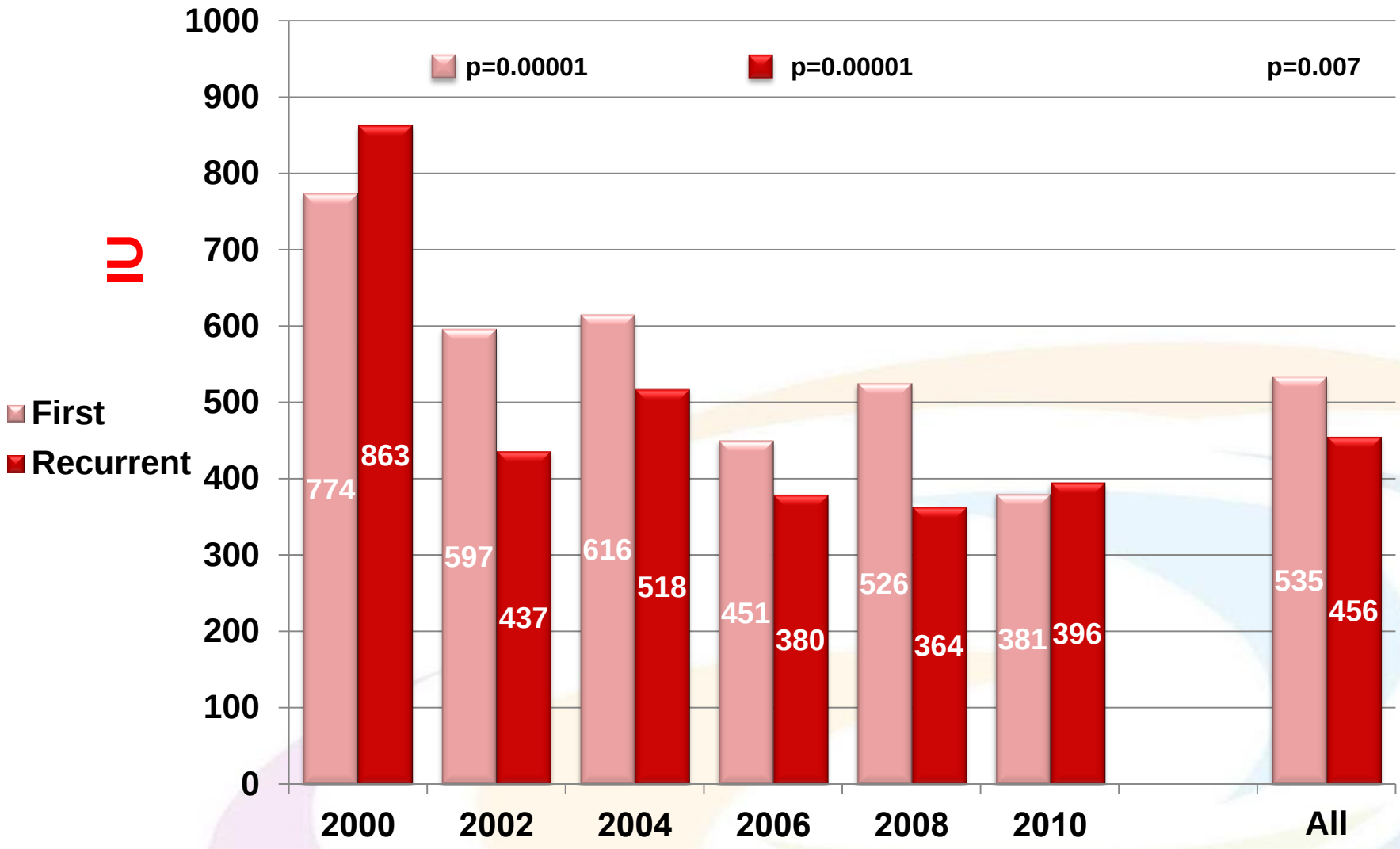
ACSIS 2000–2010 NSTEMI – LVEF Severely reduced (≤30%)



ACSIS 2000–2010 NSTEMI – Laboratory Results

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
Total cholesterol (mg/dL)									
First	206	193	195	189	183	181	0.00001	190	0.00001
Recurrent	192	187	184	169	164	166	0.00001	175	
Triglicerides (mg/dL)									
First		170	174	174	169	161	NS	170	NS
Recurrent		164	167	161	159	164	NS	163	
LDL-cholesterol (mg/dL)									
First		123	118	116	111	111	0.0008	115	0.00001
Recurrent		116	109	97	94	96	0.00001	101	
HDL-cholesterol (mg/dL)									
First		41	42	40	41	40	NS	41	NS
Recurrent		41	42	40	39	40	NS	40	

ACSIS 2000–2010 NSTEMI – Maximal CPK



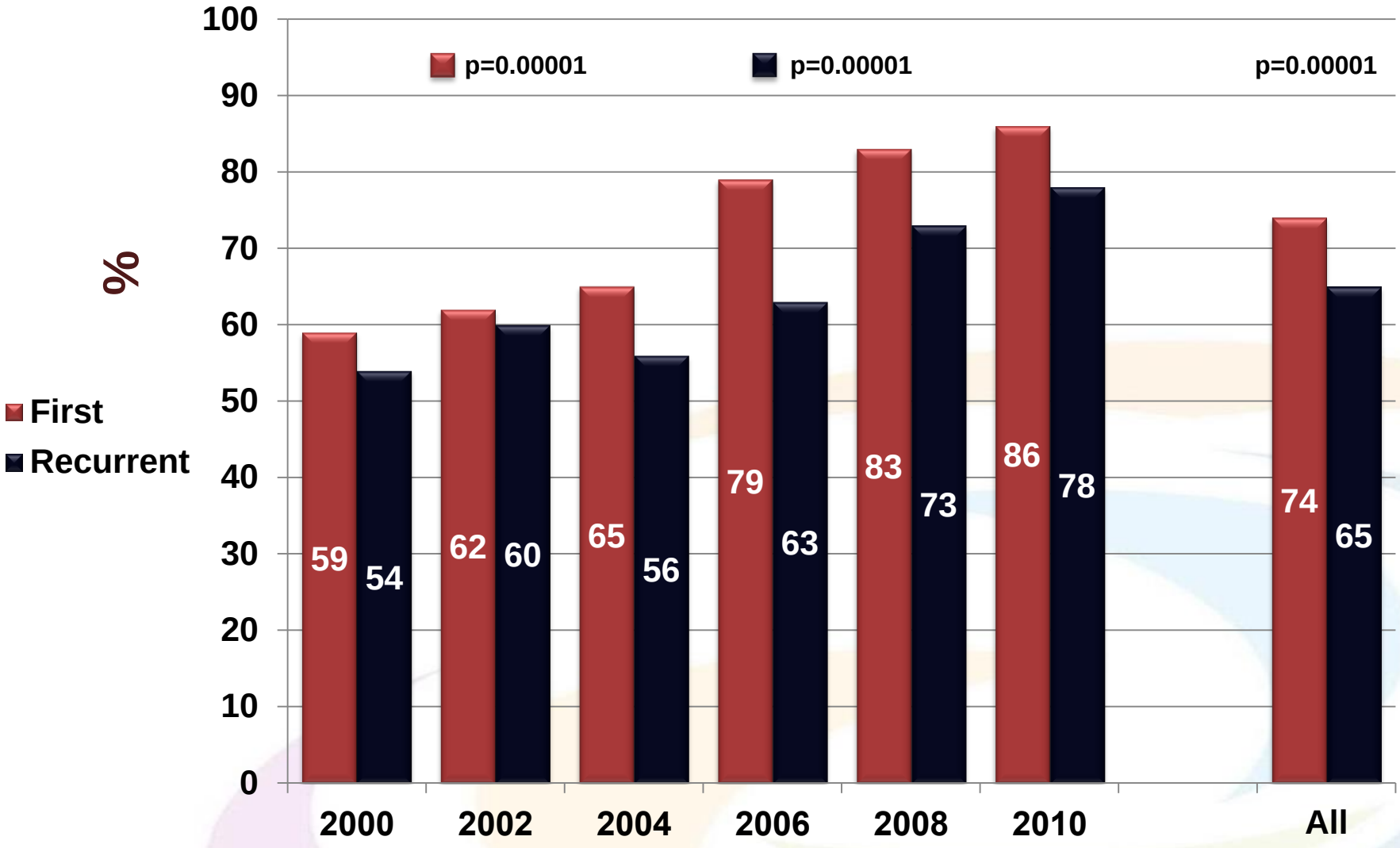
ACSIS 2000–2010 NSTEMI – Laboratory Results

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
Hemoglobin (gr/dL)									
First		13.1	12.9	13.6	13.7	13.6	0.00001	13.4	0.00001
Recurrent		12.8	12.5	13.0	13.1	13.2	0.0003	12.9	
Glucose (mg/dL)									
First			171	134	140	141	NS	146	0.00001
Recurrent			189	142	159	167	0.00001	163	
Creatinine (mg/dL)									
First		1.2	1.3	1.1	1.2	1.2	NS	1.2	0.00001
Recurrent		1.4	1.6	1.4	1.4	1.5	NS	1.5	

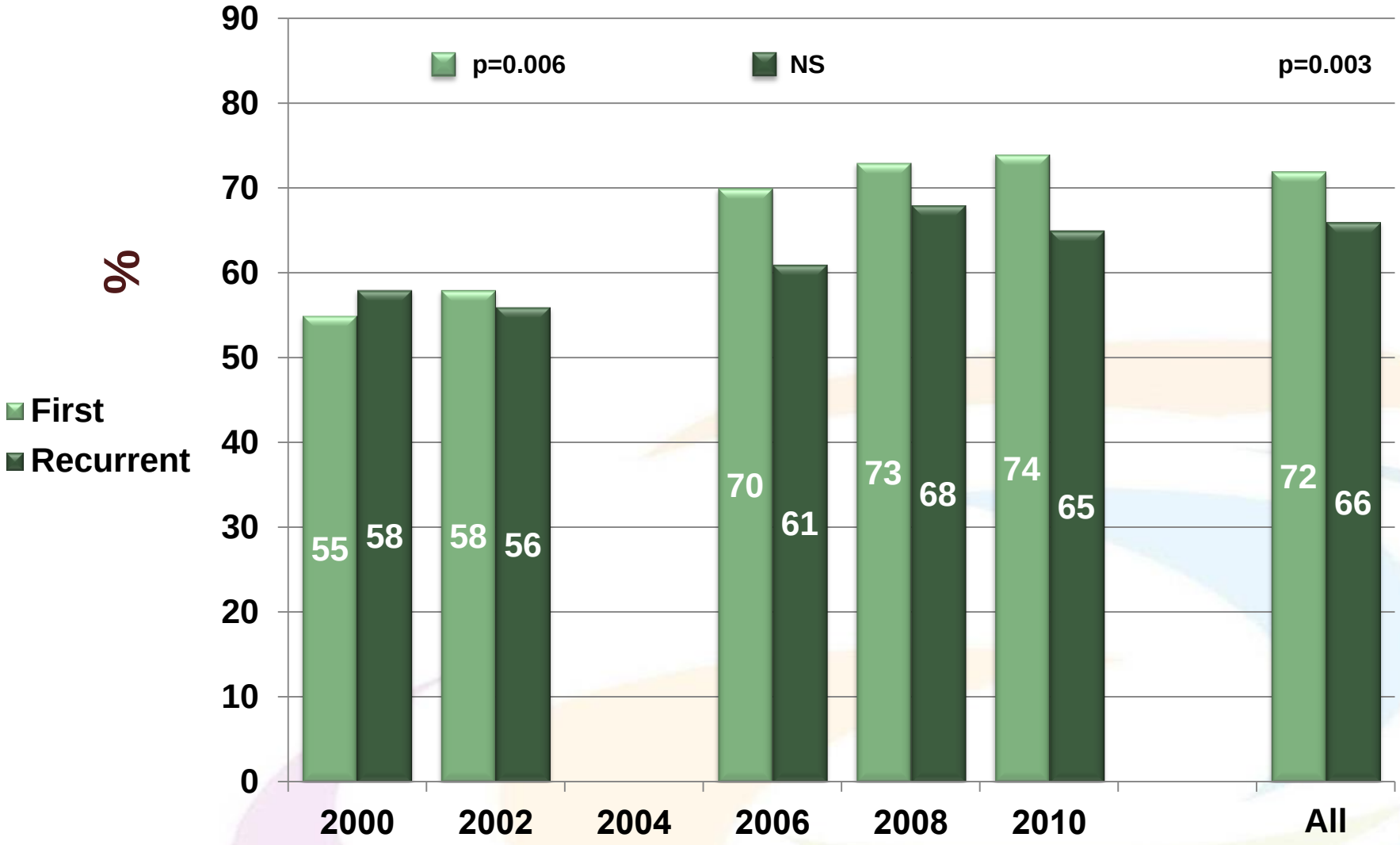
ACSIS 2000–2010 NSTEMI – In-Hospital Medications

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
IIb IIIa (%)									
First	12	9	16	22	23	12	0.006	16	0.006
Recurrent	17	6	9	14	18	14	0.06	13	
IV inptropes (%)									
First			2	3	2	4	NS	3	0.0002
Recurrent			9	7	3	4	0.01	6	
Nitrates (%)									
First	82	55	27		24	23	0.00001	37	0.00001
Recurrent	85	68	41		44	33	0.00001	49	
Diuretics (%)									
First	33	25	30	28	25	24	0.07	27	0.00001
Recurrent	46	44	55	47	50	45	NS	48	

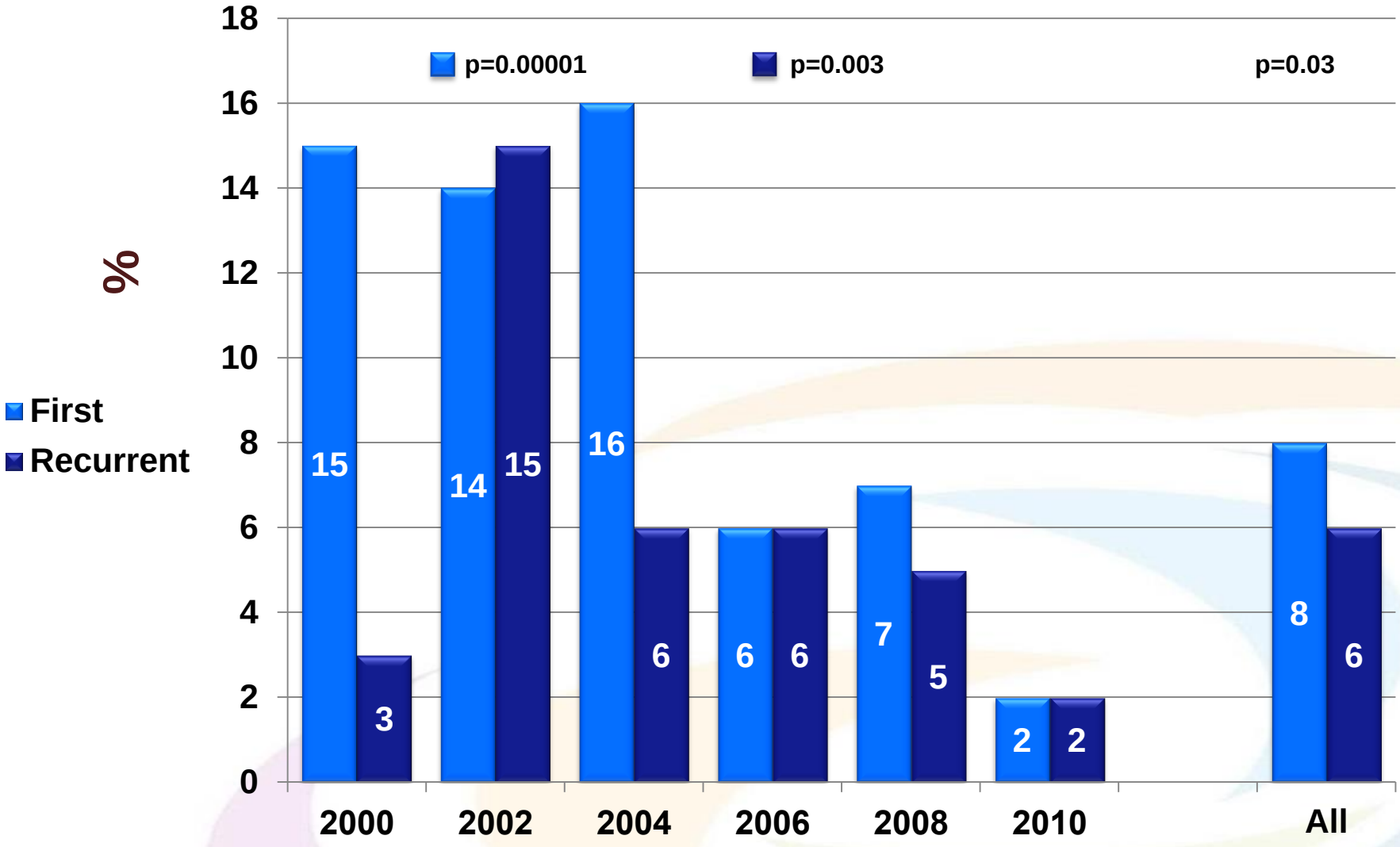
ACSIS 2000–2010 NSTEMI – Coronary Angigraphy



ACSIS 2000–2010 NSTEMI – Any PCI



ACSIS 2000–2010 NSTEMI – CABG



ACSIS 2000–2010 NSTEMI – Discharge Medications

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
Aspirin (%)									
First	93	91	95	97	96	97	0.0003	**95**	0.06
Recurrent	96	88	91	95	94	96	0.03	**93**	
Clopidogrel (%)									
First	33	51	59	72	78	82	0.00001	**66**	0.02
Recurrent	32	43	47	69	76	81	0.00001	**62**	
Diuretics (%)									
First	24	20	26	23	21	21	NS	**22**	0.00001
Recurrent	44	41	48	40	42	44	NS	**43**	
Aldosterone Antagonists (%)									
First			4	3	3	4	NS	**4**	0.00001
Recurrent			11	11	6	10	NS	**9**	

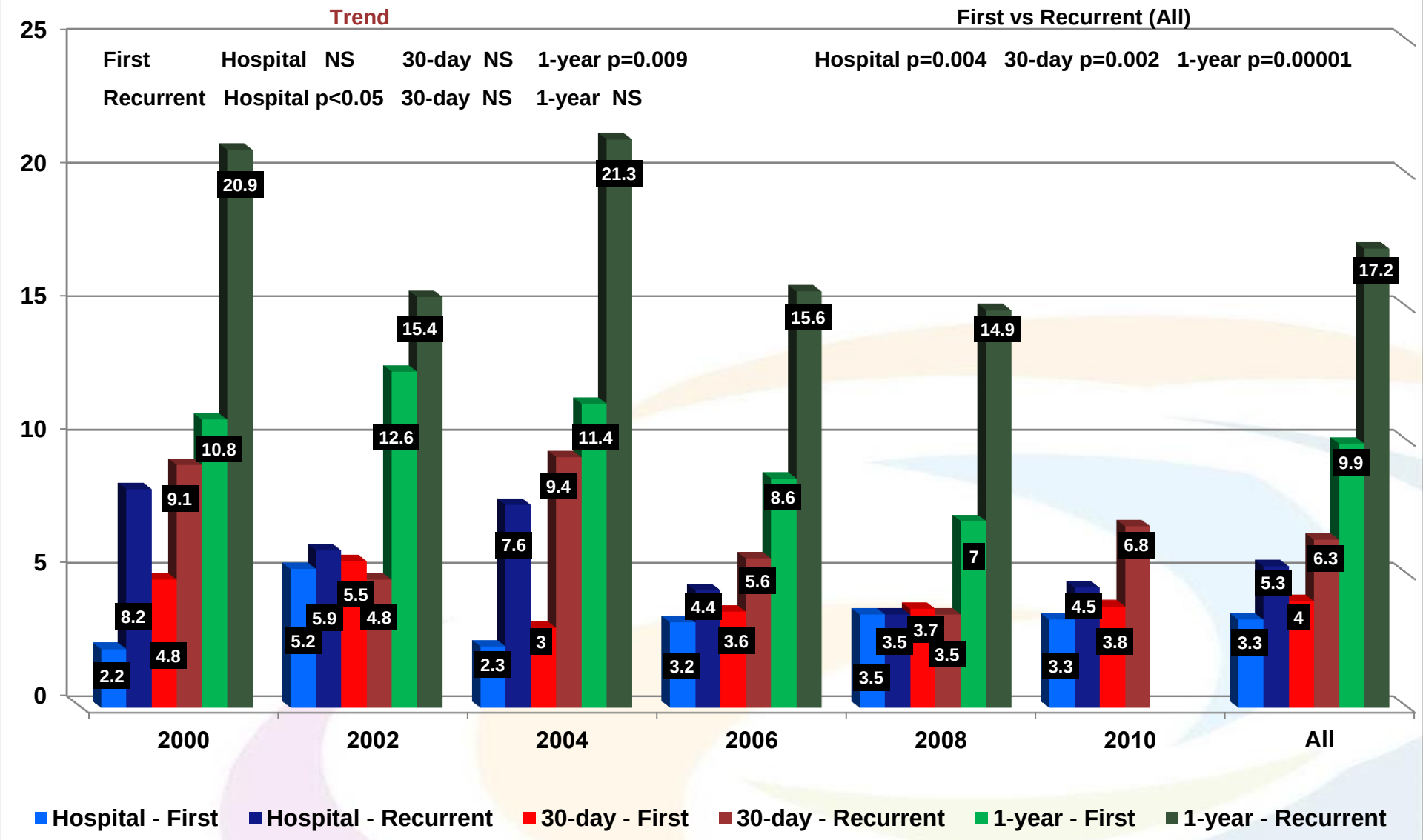
ACSIS 2000–2010 NSTEMI – Discharge Medications

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
Beta blockers (%)									
First	71	78	81	82	81	80	0.03	**80**	0.06
Recurrent	72	80	79	84	86	86	0.0004	**82**	
ACE-I/ARB (%)									
First	56	65	73	73	74	77	0.00001	**71**	0.0005
Recurrent	64	75	73	75	80	86	0.00001	**77**	
Nitrates (%)									
First	50	27	21		5	5	0.00001	**17**	0.00001
Recurrent	56	47	35		22	16	0.00001	**31**	
CCBs (%)									
First	18	16	18		20	19	NS	**18**	0.03
Recurrent	15	16	21		28	24	0.005	**22**	

ACSIS 2000–2010 NSTEMI – Discharge Medications

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
Statins (%)									
First	55	62	80	92	91	95	0.00001	83	NS
Recurrent	54	70	76	91	90	97	0.00001	83	
Digoxin (%)									
First	5	2	0.5	2	2	1	0.04	1.5	0.00001
Recurrent	8	6	7	5	3	2	0.002	5	
Insulin (%)									
First	5	7	9	8	6	8	NS	8	0.00001
Recurrent	3	9	11	18	16	21	0.00001	14	
Oral hypoglycemics (%)									
First	22	18	13	17	19	18	NS	17	0.007
Recurrent	20	17	17	23	22	24	<0.05	21	

ACSIS 2000–2010 NSTEMI – Mortality (%)



ACSIS 2000–2010 Hospital Mortality

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
NSTEMI									
First - Age (yrs)	65	65	65	65	63	64	NS	**65**	
Mortality (%)	**3.3**	**5.2**	**2.3**	**3.2**	**3.5**	**3.3**	**NS**	**3.3**	
Recurrent – Age	68	69	70	69	70	68	NS	**69**	0.00001
Mortality (%)	**8.2**	**5.9**	**7.6**	**4.4**	**3.5**	**4.5**	**0.05**	**5.3**	**0.004**
STEMI									
First - Age (yrs)	61	62	62	60	60	61	NS	**61**	
Mortality (%)	**7.8**	**5.4**	**5.2**	**2.8**	**5.5**	**2.8**	**0.0004**	**5.0**	
Recurrent – Age	66	64	66	65	63	65	NS	**65**	0.00001
Mortality (%)	**11.2**	**4.7**	**7.9**	**8.7**	**4.5**	**7.3**	**NS**	**7.4**	**0.008**

ACSIS 2000–2010 30-day Mortality

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
NSTEMI									
First (%)	4.0	5.5	3.0	3.6	3.7	3.8	NS	4.0	0.002
Recurrent (%)	9.1	4.8	9.4	5.6	3.5	6.8	NS	6.3	
STEMI									
First (%)	**9.2**	**5.2**	**6.4**	**3.4**	**6.0**	**3.4**	**0.0003**	5.7	0.002
Recurrent (%)	**15.4**	**6.2**	**8.5**	**8.7**	**3.8**	**8.6**	**0.04**	8.6	

ACSIS 2000–2010 1-year Mortality

	2000	2002	2004	2006	2008	2010	P trend	All	P Recurrent vs. First
NSTEMI									
First (%)	**10.8**	**12.6**	**11.4**	**8.6**	**7.0**		**0.009**	**9.9**	
Recurrent (%)	20.9	15.4	21.3	15.6	14.9		NS	**17.2**	**0.00001**
STEMI									
First (%)	**12.7**	**8.1**	**9.7**	**7.5**	**8.1**		**0.01**	**9.3**	**0.00001**
Recurrent (%)	**23.1**	**14.7**	**15.1**	**20.2**	**8.3**		**0.01**	**16.2**	

ACSIS 2000–2010 Summary and Conclusions

- Recurrent NSTEMI pts are older, more >75 yrs, DM, HTN, dyslipidemia, CRF, PVD, s/p CVA , PCI and CABG, but are less women and current smokers.
- Recurrent STEMI pts have higher rates of LV dysfunction, Killip ≥2 and hospital complications.
- They underwent less cardiac catheterizations, PCI and CABG, received less IIbIIIa, but more inotropes, nitrates and diuretics
- During the first year their early and late mortality is significantly higher.
- In both study groups there is only tendency to mortality improvement, which reach statistical significance early only in recurrent NSTEMI and at 1-year only in First NSTEMI.
- NSTEMI pts First and Recurrent need improved therapeutic approach as although their hospital mortality is lower than STEMI counterparts it became higher at 1-year.

המרכז הרפואי
הלל יפה

Thank You