분석 사례 및 실습

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국민건강보험

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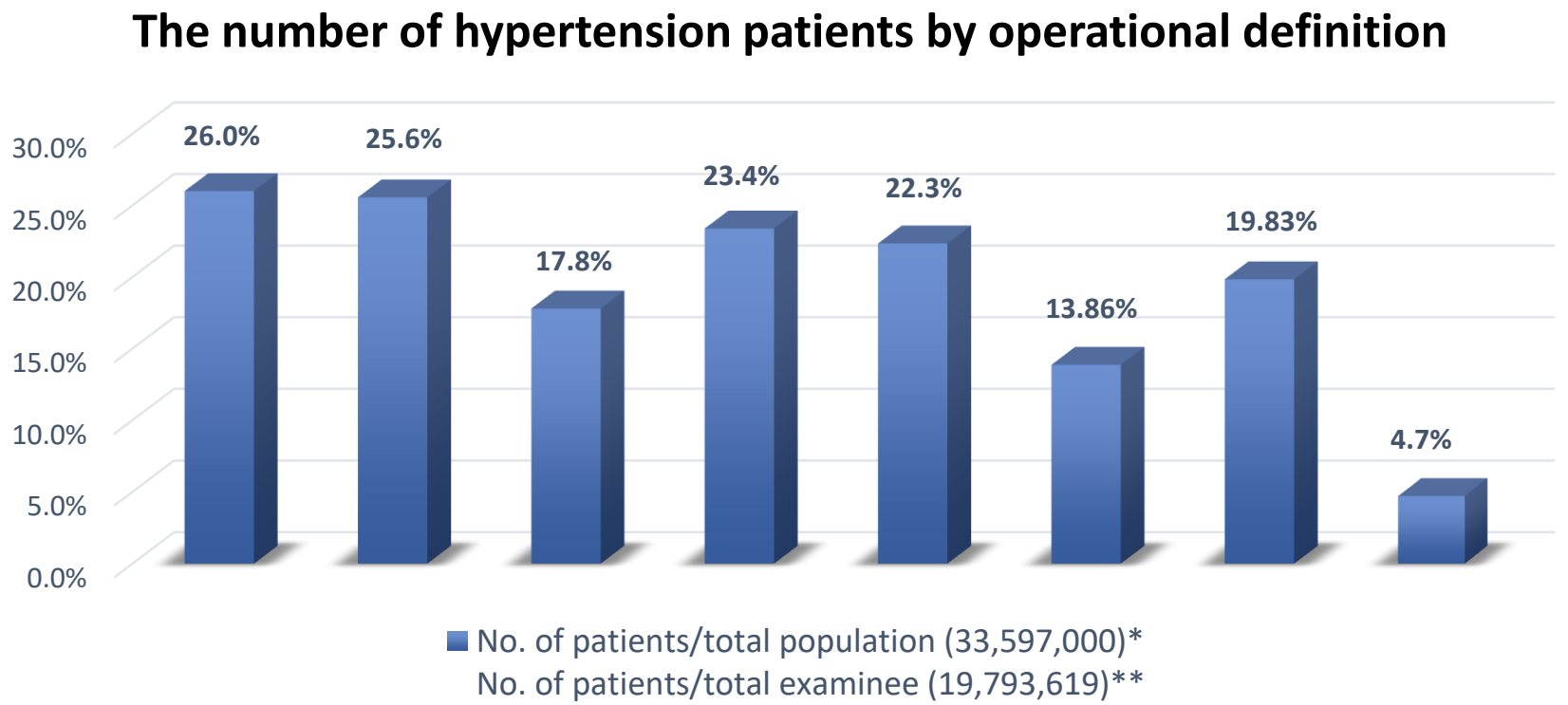
1. 공단자료의 특성 이해

- 상병코드, 약제, 검진



EJ Lee et al. Working paper

1) 상병코드(전체) 2) 상병코드(5상병) 3) 상병코드(주상병)
4) 약물처방 5) 상병코드(전체) & 처방 6) 검진(측정) 7) 검진(과거력)
8) 상병코드(전체) & 검진

2. 청구방식에 대한 이해

- **청구 프로세스 및 청구 방식의 변화 확인**

보건복지부 고시 제2006 - 120호

제2조(명세서의 구분 및 작성방법에 대한 경과조치) 제7조의2 제1항 제2호의 개정규정에도 불구하고 국립병원, 보험자가 설립. 운영하는 병원 및 보건의료원을 제외한 요양기관 중 **의원급 요양기관(의과, 치과, 한방)은 2007년 6월 30일까지, 병원급이상 요양기관은 보건복지부장관이 정하는 기간까지** 월간 요양급여내역을 본인일부부담금산정방법(정률, 정액)별로 동일명세서에 통합하여 작성할 수 있다.

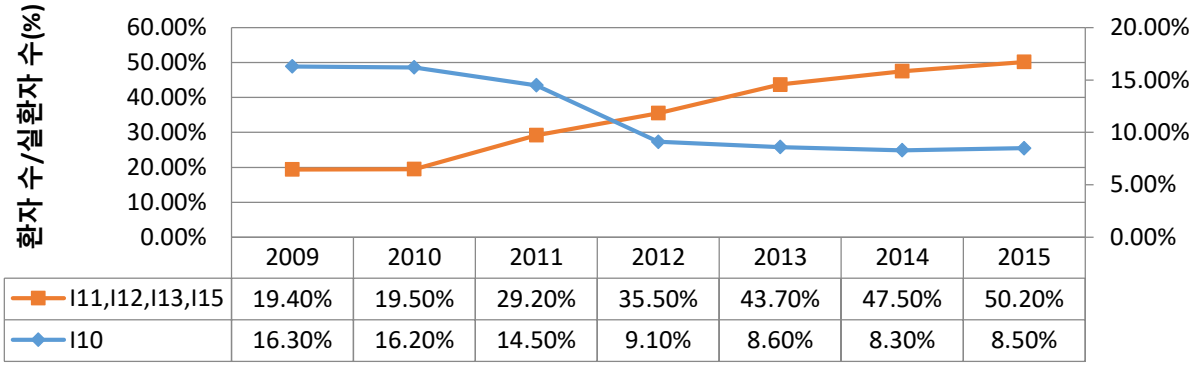
보건복지부 고시 제2011 - 53호

제3조(명세서의 구분 및 작성방법에 대한 경과조치) 「건강보험요양급여비용 청구방법, 심사청구서. 명세서서식 및 작성요령(보건복지부 고시 제2006-120호(2006.12.29))」부칙 제2조에서 보건복지부장관이 정하는 기간 및 보건진료소의 **월간 요양급여내역을 본인일부부담금산정방법(정률, 정액)별로 동일명세서에 통합하여 작성할 수 있는 기간은 2011년 12월 31일까지**로 한다.

3. 정책에 대한 이해

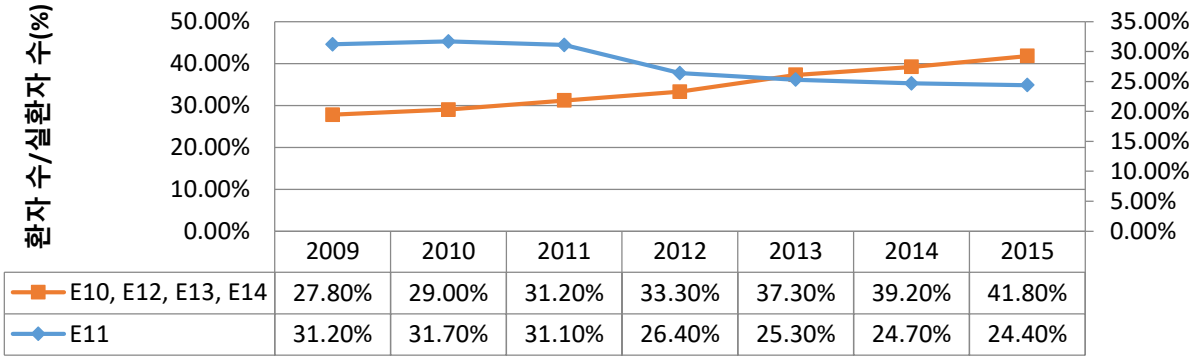
경증질환 약제비 본인부담 차등제 ('11.10월 시행)

주병상 기준, 고혈압 관련 상병으로 종합병원 급 이상 병원을 방문한 환자



	2009	2010	2011	2012	2013	2014	2015
I11,I12,I13,I15	19.40%	19.50%	29.20%	35.50%	43.70%	47.50%	50.20%
I10	16.30%	16.20%	14.50%	9.10%	8.60%	8.30%	8.50%

주병상 기준, 당뇨 관련 상병으로 종합병원 급 이상 병원을 방문한 환자



	2009	2010	2011	2012	2013	2014	2015
E10, E12, E13, E14	27.80%	29.00%	31.20%	33.30%	37.30%	39.20%	41.80%
E11	31.20%	31.70%	31.10%	26.40%	25.30%	24.70%	24.40%

4. 기존 조작적 정의 참고

- '국민건강영양조사'에서의 고혈압 환자 정의 (유병률)

  : 혈압 높거나(수축기 140 또는 이완기 90이상), 약물 복용한 자

- 신규환자 정의: 기존 진료내역 없는 자

Table 1: New cases of diabetes and kappa agreement by clearance period and exclusion criteria

	Exclusion criteria for prevalent case					
	One hit method			NDSS* method		
Clearance period (years)	Number of new cases	Incidence proportion**	Kappa agreement***	Number of new cases	Incidence proportion**	Kappa agreement***
1	91872	2.9%	0.427 (0.420-0.432)†§	91872	2.9%	0.482 (0.479-0.485)†§
2	52508	1.7%	0.739 (0.731-0.742)†§	52508	1.7%	0.810 (0.801-0.822)†§
3	43473	1.4%	0.849 (0.845-0.851)†§	45525	1.5%	0.898 (0.896-0.900)†§
4	39595	1.33%	0.900 (0.900-0905)†§	42791	1.4%	0.936 (0.933-0.937)†§
5	37473	1.23%	0.935 (0.933-0.937)†§	41261	1.3%	0.957 (0.956-0.958)†§

S Asghari et al. Optimal strategy to identify incidence of diagnostic of diabetes using administ rative data. BMC medical research methodology 2009;9(1)62.

Ⅱ 분석 사례

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1. 분석 사례 - 비스포스포네이트 처방과 턱뼈 괴사의 연관성

AMERICAN ACADEMY OF OPHTHALMOLOGY
The Eye M.D. Association

Retinal Vein Occlusion and the Risk of Stroke Development

A 9-Year Nationwide Population-Based Study

Tyler Hyungtaek Rim, MD, MBA,[1] Dong Wook Kim, PhD,[2] John Seungsoo Han, MD,[1] Eun Jee Chung, MD, PhD[3]

Purpose: To evaluate the risk of stroke development after retinal vein occlusion (RVO).
Design: Nationwide, population-based 9-year longitudinal study.
Participants: National registry data were collected from the Korean National Health Insurance Research Database, comprising 1 025 340 (~2.2%) random subjects who were selected from 46 605 433 Korean residents in 2002.
Methods: Patients diagnosed with RVO or stroke in 2002 were excluded. The RVO group was composed of patients with an initial diagnosis of central or branch RVO between January 2003 and December 2005 (n = 344 in 2003, 375 in 2004, and 312 in 2005). The comparison group was composed of randomly selected patients (5 per patient with RVO; n = 1696 in 2003, 1854 in 2004, and 1524 in 2005) who were matched to the RVO group according to age, sex, residential area, household income, and year of RVO diagnosis. Each sampled patient was tracked until 2010. Cox proportional hazard regressions were used to calculate the overall survival rate for stroke development after adjusting for potential confounders, including hypertension, diabetes mellitus, and chronic kidney disease.
Main Outcome Measures: Retinal vein occlusion and ischemic or hemorrhagic stroke based on the International Classification of Disease codes.
Results: Stroke developed in 16.8% of the RVO group and in 10.7% of the comparison group. Retinal vein occlusion was associated with an increased risk of stroke development (hazard ratio [HR], 1.48; 95% confidence interval [CI], 1.24—1.76). Hypertension, diabetes mellitus, and chronic kidney disease also increased the risk of stroke development. In addition, RVO increased the risk of both ischemic stroke (HR, 1.51; 95% CI, 1.24—1.84) and hemorrhagic stroke (HR, 1.30; 95% CI, 0.83—2.05), although this result was not significant for hemorrhagic stroke. In terms of age, the effect size of the HR was largest among younger adults, aged <50 years (HR, 2.69), compared with middle-aged adults, aged 50 to 69 years (HR, 1.33), and older adults, aged ≥70 years (HR, 1.46).
Conclusions: Retinal vein occlusion was significantly associated with stroke development after adjusting for potential confounders. These findings are limited by uncontrolled confounding and need to be replicated by other observational studies. *Ophthalmology 2015;122:1187-1194 © 2015 by the American Academy of Ophthalmology.*

1. 분석 사례 - 비스포스포네이트 처방과 턱뼈 괴사의 연관성

- **분석방법**

STEP1 : 골다공증 환자 중 턱뼈괴사환자 추출

- 골다공증 환자 조작적 정의 : 상병코드 KCD M82
- 턱뼈괴사 환자 조작적 정의 : 상병코드 KCD K87.1, K10.2

STEP2 : 신환자 추출 (Wash Out)

- 2002~2003년 턱뼈괴사로 진료받은 환자 제외

STEP3 : 비스포스포네이트 약물 이용 군 구분

- 사용시기, 사용량

STEP4 : 대조군 선정

- 골다공증 진료가 없었던 환자 추출 (환자군의 10배수)

STEP5 : 분석

- 로지스틱 회귀분석 (CCI 보정)
- 민감도 분석

2. 분석 사례 - 망막정맥폐쇄 후 뇌졸중 위험

JDR Clinical Research Supplement September 2015

A Large National Cohort Study of the Association between Bisphosphonates and Osteonecrosis of the Jaw in Patients with Osteoporosis: A Nested Case-control Study

J.-W. Kwon[1†], E.-J. Park[2†], S.-Y. Jung[3], H.S. Sohn[4], H. Ryu[5], and H.S. Suh[6*]

Abstract: *The purpose of this study was to examine the association between bisphosphonate exposure and osteonecrosis of the jaw (ONJ) in Korean patients with osteoporosis. A nested case-control study was performed using the claims database during 2002 to 2010 provided by the National Health Insurance Service. We identified a cohort of individuals with diagnosis of osteoporosis during 2002 to 2010. Cases and controls were identified during 2004 to 2010, and the date of potential cases of ONJ was defined as the index date. Bisphosphonate exposure was evaluated during 2 y prior to the index date. The association between bisphosphonate exposure and ONJ was tested by performing a conditional logistic regression analysis for matched data, and odds ratios (ORs) with 95% confidence intervals (CIs) were presented. Subjects were classified as nonuser, recent user, past user, or continuous user, depending on the prescription of bisphosphonates in 2 periods (1 to 2 y and 0 to 1 y prior to the index date). Continuous users were defined as patients who were exposed to bisphosphonate in both periods. We also examined the impact of bisphosphonate medication compliance by measuring the cumulative duration of exposure (CDE) on the risk of ONJ. A total of 212 cases with ONJ and 2,120 controls matched by sex, age, income level, and insurance type were identified among 109,787 patients with osteoporosis out of 1,025,340 enrollees in the sample cohort. The odds of having ONJ after adjusting for patient comorbidities significantly increased in continuous users of bisphosphonates (OR, 3.9; 95% CI, 2.4 to 6.2) compared to nonusers. Increased odds of ONJ were observed as CDE increased. The adjusted OR in patients with 1.5 y < CDE ≤ 2 y prior to the index date was 7.8 (95% CI, 4.0 to 15.5) versus nonusers. Our study results support significantly increased occurrences of potential ONJ in patients with osteoporosis who were exposed to bisphosphonates compared to those without exposure.*

Key Words: bisphosphonate-associated osteonecrosis of the jaw, Asian Continental Ancestry Group, medication compliance, retrospective studies, Korea/epidemiology, drug-related side effects and adverse reactions.

Introduction

Although osteoporosis is a silent disease, it requires careful management because it and related fractures are an important worldwide public health concern that increases the economic burden on the health care system (Harvey et al. 2010). Osteoporosis is estimated to have a prevalence of 19.3% in individuals >50 y of age in Korea (Lee et al. 2013). The incidence of osteoporotic fractures increases with advancing age, and the residual lifetime probability is 59.5% in women (Lim et al. 2008; Park et al. 2011).

2. 분석 사례 - 망막정맥폐쇄 후 뇌졸중 위험

- **분석방법**

STEP1 : RVO(Retinal Vein Occlusion) 환자 추출

- RVO 환자 조작적 정의 : 상병코드 KCD H34.8

STEP2 : 신환자 추출 (Wash Out)

- 2002년 RVO로 진료받은 환자 제외

STEP3 : RVO 진료 후 뇌졸중 발병 환자 추출

- 뇌졸중 환자 조작적 정의 (허혈성 뇌졸중 : I63, 출혈성 뇌졸중 : I60-I62)

STEP4 : 대조군 선정

- RVO 진료가 없었던 환자 추출 (환자군의 5배수)

STEP5 : 분석

- 카이제곱 검정
- 단변량, 다변량 콕스 회귀분석
- 생존분석
- LOG RANK TEST

Ⅲ 실습

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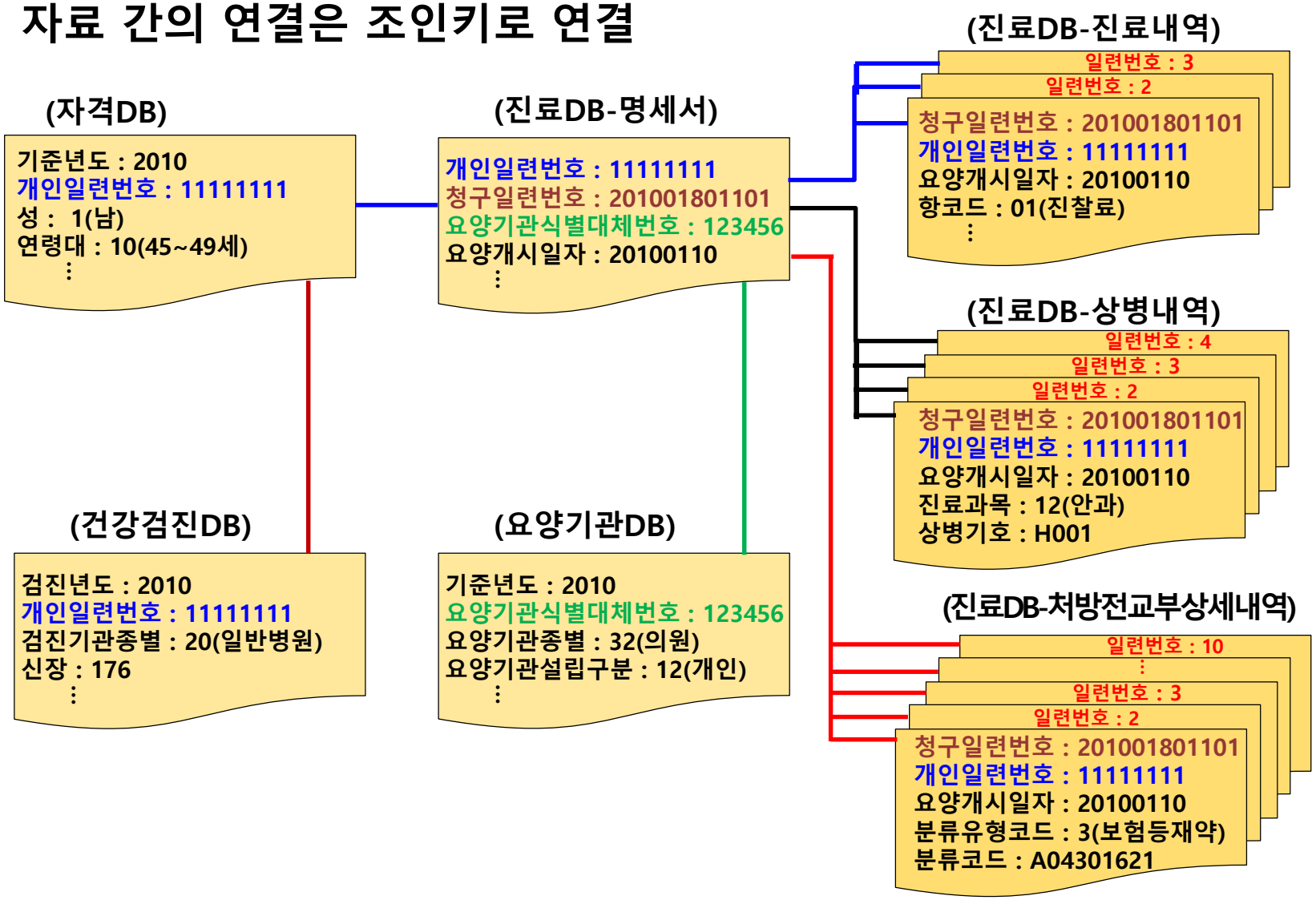
국민건강정보DB 자료별 조인키

테이블	연결변수		
자격 및 보험료	개인고유번호		
출생 및 사망	개인고유번호		
명세서(20T)	개인고유번호	청구고유번호	요양기관고유번호
진료내역(30T)	개인고유번호	청구고유번호	
상병내역(40T)	개인고유번호	청구고유번호	
처방전교부상세(60T)	개인고유번호	청구고유번호	
건강검진	개인고유번호		
요양기관	요양기관고유번호		

국민건강정보 DB 자료구성 및 연결방법

- 자료 간의 연결은 조인키로 연결



실습 1

주제 : 당뇨병과 뇌졸중 발생과의 관계 분석

STEP 1 : 조작적 정의 비교

당뇨병 환자 조작적 정의

CASE 1-1, 1-2 : 상병으로 정의 (주상병 , 전체상병)

CASE 2 : 약제로 정의

CASE 3 : 상병(전체상병) & 약제로 정의

STEP 2 : 당뇨병 신환자 추출 (Wash Out)

- 최초발생일자가 2009년 이후인 환자

STEP 3 : 주상병 기준 뇌졸중 발생 구분

- 조작적 정의 : 상병코드 I60-I63

STEP 4 : 당뇨병과 뇌졸중 발병과의 관계 분석

실습 1 - STEP 1 : 조작적 정의

- **CASE 1-1 : 상병으로 정의(주상병)**

```
PROC SQL;
CREATE TABLE TEST1_1 AS
SELECT *
FROM SAMPLE.NSC2_M20_1000
WHERE SUBSTR(SICK_SYM1,1,3) BETWEEN 'E10' AND 'E14'
ORDER BY RN_INDI, MDCARE_STRT_DT
; QUIT;
```

* SICK_SYM1 : 주상병 / RN_INDI : 개인식별번호 / MDCARE_STRT_DT :요양개시일자

실습 1 - STEP 1 : 조작적 정의

- **CASE 1-1 : 상병으로 정의(주상병)**

RN_INDI	RN_KEY	RN_INST	MDCARE_STRT_DT	FORM_CD	MCARE_SUBJ_CD	SICK_SYM1	SICK_SYM2
73	2002030190668	27	20020306	03	01	E118	I10
73	2002080501830	27	20020828	03	01	E118	I10
73	2003010007516	27	20030118	03	12	E143	H269
73	2003020802159	27	20030212	03	01	E118	I10
73	2003070365534	27	20030719	03	12	E143	H160
73	2004010741357	367	20040113	08	00	E12	I10
73	2004030145824	27	20040311	03	12	E143	H160
73	2004051048930	27	20040506	03	12	E143	F_
73	2004060246829	27	20040603	03	12	E143	G311
73	2005040556305	27	20050423	03	12	E143	G311
73	2005070339332	27	20050716	03	12	E143	G311
73	2006020782296	367	20060209	08	00	E12	I10
73	2006020084606	367	20060215	08	00	E12	I10
73	2006021338009	367	20060223	08	00	E12	I10
73	2006021102368	367	20060227	08	00	E12	I10

TIP. 추출 데이터 확인

```
PROC FREQ DATA=TEST1_1;

TABLE STD_YYYY;

QUIT;
```

* STD_YYYY : 기준연도

FREQ 프로시저

STD_YYYY	빈도	백분율	누적 빈도	누적 백분율
2002	75	2.26	75	2.26
2003	113	3.40	188	5.66
2004	142	4.28	330	9.94
2005	142	4.28	472	14.22
2006	180	5.42	652	19.64
2007	238	7.17	890	26.81
2008	219	6.60	1109	33.40
2009	257	7.74	1366	41.14
2010	241	7.26	1607	48.40
2011	288	8.67	1895	57.08
2012	308	9.28	2203	66.36
2013	350	10.54	2553	76.90
2014	403	12.14	2956	89.04
2015	364	10.96	3320	100.00

TIP. 추출 데이터 확인

- 연도별 상병별 환자수, 진료건수

```
PROC SQL;
CREATE TABLE TMP1 AS
SELECT DISTINCT STD_YYYY, SUBSTR(SICK_SYM1,1,3), COUNT(*) AS CNT,
COUNT(DISTINCT RN_INDI) AS INDI_CNT
FROM TEST1_1
GROUP BY STD_YYYY, SUBSTR(SICK_SYM1,1,3)
ORDER BY 2,1
;QUIT;
```

	STD_YYYY	_TEMA003	CNT	INDI_CNT
1	2002	E10	11	2
2	2003	E10	11	3
3	2004	E10	8	2
4	2005	E10	9	4
5	2006	E10	20	4
6	2007	E10	28	6
7	2008	E10	11	3
8	2009	E10	4	1
9	2010	E10	4	1
10	2011	E10	5	1

실습 1 - STEP 1 : 조작적 정의

- **CASE 1-2 : 상병으로 정의(전체상병)**

```
PROC SQL;
CREATE TABLE TEST1_2 AS
SELECT *
FROM SAMPLE.NSC2_M40_1000
WHERE SUBSTR(MCEX_SICK_SYM,1,3) BETWEEN 'E10' AND 'E14'
AND (SICK_CLSF_TYPE<>'3' OR SICK_CLSF_TYPE IS NULL)
; QUIT;
```

* MCEX_SICK_SYM : 상병기호 / SICK_CLSF_TYPE : 상병분류구분코드

실습 1 - STEP 1 : 조작적 정의

- **CASE 1-2 : 상병으로 정의(전체상병)**

	RN_INDI	RN_KEY	MDCARE_STRT_DT	FORM_CD	MCEX_SICK_SYM
1	57	2002120872734	20021203	03	E11
2	48	2002120986928	20021203	03	E109
3	48	2002110051507	20021104	03	E109
4	97	2002120744860	20021204	03	E149
5	57	2002100373822	20021004	03	E11
6	48	2002100084063	20021004	03	E109
7	67	2002060540281	20020601	03	E10
8	97	2002020080249	20020201	03	E115
9	97	2002050877412	20020502	03	E11
10	97	2002050762623	20020502	03	E115
11	10	2002100872641	20021007	03	E11
12	81	2002110224101	20021125	03	E11
13	57	2002111049919	20021125	03	E119
14	48	2002050364859	20020506	03	E109
15	57	2002090816943	20020923	03	E119
16	48	2002040927578	20020408	03	E109
17	10	2002110024124	20021118	03	E11
18	57	2002010396449	20020103	03	E119
19	48	2002010769628	20020103	03	E109
20	48	2002090108761	20020904	03	E109
21	10	2002120167373	20021209	03	E11
22	49	2002020191323	20020214	03	E11
23	49	2002020191323	20020214	03	E105

실습 1 - STEP 1 : 조작적 정의

- **CASE 2 : 약제로 정의**

```
PROC SQL;
CREATE TABLE TEST2 AS
SELECT RN_INDI, RN_KEY, MCARE_DIV_CD AS GML_NM
FROM SAMPLE.NSC2_M30_1000
WHERE MCARE_DIV_CD IN ('104201ATB','104202ATB','107601ATB') /*원내처방*/
UNION  /*UNION ALL 비교*/
SELECT RN_INDI, RN_KEY, GNL_NM_CD AS GML_NM
FROM SAMPLE.NSC2_M60_1000
WHERE GNL_NM_CD IN ('104201ATB','104202ATB','107601ATB') /*원외처방*/
; QUIT;
```

* MCARE_DIV_CD : 분류코드 / RN_KEY : 공통키(명세서연계) / GNL_NM_CD : 주성분코드

실습 1 - STEP 1 : 조작적 정의

- **CASE 2 : 약제로 정의**

	RN_INDI	RN_KEY	GML_NM
1	6	2010042172181	107601ATB
2	6	2010051482236	107601ATB
3	6	2010051536007	107601ATB
4	6	2010061335575	107601ATB
5	23	2011101887290	107601ATB
6	27	2002010703192	107601ATB
7	27	2002040338017	107601ATB
8	27	2002060342505	107601ATB
9	27	2002100579303	107601ATB
10	27	2002120527983	107601ATB
11	27	2003020603334	107601ATB
12	27	2003040099309	107601ATB
13	27	2003050225154	107601ATB
14	27	2003080045224	107601ATB
15	27	2004110481615	107601ATB
16	27	2004111103686	107601ATB
17	27	2005020373565	107601ATB
18	27	2005040087459	107601ATB
19	27	2005060639221	107601ATB
20	27	2005091074975	107601ATB

실습 1 - STEP 1 : 조작적 정의

- **CASE 3 : 상병코드(전체상병) & 약제로 정의**

```
PROC SQL;
CREATE TABLE TEST3 AS
SELECT *
FROM SAMPLE.NSC2_M40_1000 AS SA
INNER JOIN TEST2 AS SB
ON SA.RN_KEY=SB.RN_KEY
WHERE SUBSTR(SA.MCEX_SICK_SYM,1,3) BETWEEN 'E10' AND 'E14'
AND (SA.SICK_CLSF_TYPE<>'3' OR SA.SICK_CLSF_TYPE IS NULL)
; QUIT;
```

실습 1 - STEP 1 : 조작적 정의

- CASE 3 : 상병코드(전체상병) & 약제로 정의

	RN_INDI	RN_KEY	MDCARE_STRT_DT	FORM_CD	MCEX_SICK_SYM	STD_YYYY	GML_NM
1	97	2002050877412	20020502	03	E11	2002	107601ATB
2	97	2002121011808	20021216	03	E115	2002	107601ATB
3	97	2002050576963	20020504	03	E119	2002	107601ATB
4	45	2002120446848	20021230	03	E117	2002	107601ATB
5	10	2002080764428	20020826	03	E119	2002	107601ATB
6	45	2002080003083	20020826	03	E117	2002	107601ATB
7	45	2002090076193	20020930	03	E117	2002	107601ATB
8	97	2002060153898	20020612	03	E119	2002	107601ATB
9	97	2002070269429	20020716	03	E119	2002	107601ATB
10	97	2002100912028	20021017	03	E115	2002	107601ATB
11	45	2002111118888	20021130	03	E117	2002	107601ATB
12	50	2002070076757	20020729	03	E11	2002	107601ATB
13	10	2002080247534	20020823	03	E119	2002	107601ATB
14	45	2002100130150	20021031	03	E117	2002	107601ATB
15	45	2002050085933	20020531	03	E117	2002	107601ATB
16	45	2002070199919	20020731	03	E117	2002	107601ATB
17	45	2002060654017	20020629	03	E117	2002	107601ATB
18	97	2002050339472	20020506	02	E118	2002	107601ATB
19	73	2002120092211	20021212	02	E14	2002	107601ATB

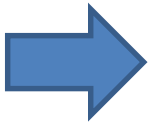
실습 1 - STEP 2 : 당뇨병 신환자 추출

- 대상자 확인

```
PROC SQL;
CREATE TABLE TEST4 AS
SELECT RN_INDI, MIN(MDCARE_STRT_DT) AS INDEX_DT
FROM TEST3
GROUP BY RN_INDI
/*HAVING  MIN(MDCARE_STRT_DT)>='20090101'*/ /*WASH OUT*/
; QUIT;
```

실습 1 - STEP 2 : 당뇨병 신환자 추출

	RN_INDI	INDEX_DT
1	2	20070504
2	8	20100224
3	10	20020823
4	13	20040602
5	17	20090424
6	18	20050708
7	21	20151017
8	23	20140107
9	41	20150905
10	44	20070309
11	45	20020531
12	48	20101027
13	48	20130313
14	50	20020729
15	61	20141006
16	63	20131112
17	73	20021212
18	87	20070922
19	91	20110924
20	91	20030906
21	94	20151029
22	95	20040622
23	97	20020502
24	97	20090511



	RN_INDI	INDEX_DT
1	8	20100224
2	17	20090424
3	21	20151017
4	23	20140107
5	41	20150905
6	48	20101027
7	48	20130313
8	61	20141006
9	63	20131112
10	91	20110924
11	94	20151029
12	97	20090511

실습 1 - STEP 3 : 뇌졸중 발생 구분

- 뇌졸중 발생 INDEX_DT 생성

```
PROC SQL;
CREATE TABLE TEST5 AS
SELECT RN_INDI, MIN(MDCARE_STRT_DT) AS INDEX_DT
FROM SAMPLE.NSC2_M40_1000
WHERE SUBSTR(MCEX_SICK_SYM,1,3) BETWEEN 'I60' AND 'I63'
AND (SICK_CLSF_TYPE<>'3' OR SICK_CLSF_TYPE IS NULL)
GROUP BY RN_INDI
; QUIT;
```

실습 1 - STEP 3 : 뇌졸중 발생 구분

- 당뇨병 신환자의 INDEX_DT 이후 뇌졸중 발생 환자

```
PROC SQL;
CREATE TABLE TEST6 AS
SELECT SA.*, SB.INDEX_DT AS S_INDEX_DT
FROM TEST4 AS SA
INNER JOIN TEST5 AS SB
ON SA.RN_INDI=SB.RN_INDI
AND SA.INDEX_DT<=SB.INDEX_DT
; QUIT;
```

실습 1 - STEP 3 : 뇌졸중 발생 구분

- 당뇨병 신환자의 INDEX_DT 이후 뇌졸중 발생 환자

	RN_INDI	RN_KEY	MDCARE_STRT_DT	FORM_CD	MCEX_SICK_SYM	STD_YYYY	INDEX_DT
1	17	2010100781804	20101020	03	I639	2010	20090424
2	48	2013051500752	20130530	03	I638	2013	20130313
3	48	2013051273698	20130527	03	I638	2013	20130313
4	48	2013051114007	20130525	03	I638	2013	20130313
5	48	2013060540175	20130604	03	I638	2013	20130313

	RN_INDI	INDEX_DT	S_INDEX_DT
1	17	20090424	20101020

실습 1 - STEP 3 : 뇌졸중 발생 구분

- 당뇨병 신환자의 INDEX_DT 이후 뇌졸중 발생 환자 구분

```
PROC SQL;
CREATE TABLE TEST7 AS
SELECT SA.RN_INDI, CASE WHEN SA.INDEX_DT <= SB.INDEX_DT THEN 1 ELSE 0 END AS
STROKE_YN
FROM TEST4 AS SA
LEFT JOIN TEST5  AS SB
ON SA.RN_INDI=SB.RN_INDI
GROUP BY SA.RN_INDI
; QUIT;
```

실습 1 - STEP 3 : 뇌졸중 발생 구분

- 2009년 이후 당뇨병 신환자의 INDEX_DT 이후 뇌졸중 발생 환자

	RN_INDI	STROKE_YN
1	8	0
2	17	1
3	21	0
4	23	0
5	41	0
6	48	0
7	48	0
8	61	0
9	63	0
10	91	0
11	94	0
12	97	0

실습2

주제 :

- **2002년 ~ 2015년 응급의료를 받은 사람의**
- **2015년 기준, 성별, 지역(시도)별 진료 건 수, 환자 수**
- **2015년 기준, 입원 / 외래 별 진료비, 입•내원 일수 합계**

STEP 1 : 2002~2015년 응급의료를 받은 환자 정의

참고.

- 2015.12.31 이전 : 응급의료관리료(AC101, AC103, AC105)
- 2016.1.1 신설 : 응급의료관리료(V1100, V1200, V1300, V1400)

STEP 2 : 성별, 지역(시도)별 진료 건 수, 환자 수

STEP 3 : 대상자의 연도별 입원 / 외래 별 진료비, 입•내원 일수 합계

실습2 - STEP 1 : 응급의료를 받은 환자 정의

```
PROC SQL;
CREATE TABLE TEST8 AS
SELECT *
FROM SAMPLE.NSC2_M30_1000
WHERE SUBSTR(MCARE_DIV_CD,1,5) IN ('AC101','AC103','AC105')
; QUIT;
```

실습2 - STEP 1 : 응급의료를 받은 환자 정의

	RN_INDI	RN_KEY	MDCARE_STRT_DT	FORM_CD	CLA_CD	ITEM_CD	MCARE_DIV_CD	UPRC	DD1_MQTY_FREQ	TOT_MCNT	AMT
1	88	2002110063300	20021110	03	01	03	AC103	29130,00	1,000	1	29130
2	48	2002060311975	20020601	03	01	03	AC103	29130,00	1,000	1	29130
3	48	2002120639017	20021219	03	01	03	AC103	29130,00	1,000	1	29130
4	20	2002070220400	20020713	03	01	03	AC103	29130,00	1,000	1	29130
5	51	2002090660702	20020904	03	01	03	AC103	29130,00	1,000	1	29130
6	95	2002070708371	20020720	02	01	03	AC103	29130,00	1,000	1	29130
7	84	2002120469883	20021222	03	01	03	AC103	29130,00	1,000	1	29130
8	35	2002050075475	20020505	03	01	03	AC103	29130,00	1,000	1	29130
9	47	2002080328692	20020802	03	01	03	AC103	29130,00	1,000	1	29130
10	22	2002080383779	20020823	02	01	03	AC103	29130,00	1,000	1	29130
11	47	2002030242997	20020323	03	01	03	AC103	30000,00	1,000	1	30000
12	72	2002010393558	20020128	03	01	03	AC103	30000,00	1,000	1	30000
13	56	2002090752508	20020901	03	01	03	AC101	29130,00	1,000	1	29130
14	61	2002060127801	20020629	03	01	03	AC101	29130,00	1,000	1	29130
15	73	2002120223387	20021212	03	01	03	AC101	29130,00	1,000	1	29130
16	97	2002110832399	20021124	03	01	03	AC101	29130,00	1,000	1	29130
17	44	2002010313636	20020107	03	01	03	AC101	30000,00	1,000	1	30000
18	19	2002040976029	20020416	03	01	03	AC105	14570,00	1,000	1	14570
19	19	2002080220860	20020827	03	01	03	AC105	14570,00	1,000	1	14570
20	46	2002010222624	20020109	03	01	03	AC105	15000,00	1,000	1	15000
21	48	2002030501488	20020311	03	01	03	AC103	30000,00	1,000	2	60000
22	36	2003080659862	20030810	03	01	03	AC103	30000,00	1,000	1	30000
23	47	2003090134444	20030929	03	01	03	AC103	30000,00	1,000	1	30000
24	20	2003100744200	20031026	03	01	03	AC103	30000,00	1,000	1	30000
25	8	2003070461951	20030731	03	01	03	AC103	30000,00	1,000	1	30000
26	33	2003100708054	20031022	03	01	03	AC103	30000,00	1,000	1	30000
27	46	2003110641823	20031118	03	01	03	AC103	30000,00	1,000	1	30000
28	87	2003100219804	20031009	03	01	03	AC103	30000,00	1,000	1	30000
29	6	2003070916276	20030703	02	01	03	AC103	30000,00	1,000	1	30000
30	33	2003110270493	20031110	03	01	03	AC101	30000,00	1,000	1	30000
31	15	2003020268986	20030206	03	01	03	AC101	30000,00	1,000	1	30000
32	33	2003100142275	20031018	02	01	03	AC101	30000,00	1,000	1	30000
33	95	2003050319565	20030509	02	01	03	AC101	30000,00	1,000	1	30000
34	47	2003080306726	20030827	02	01	03	AC101	30000,00	1,000	1	30000
35	77	2003030550687	20030325	03	01	03	AC103	30000,00	1,000	1	30000

실습2 - STEP 2 : 진료 건 수, 환자 수

```
PROC SQL;
CREATE TABLE TEST9 AS
SELECT DISTINCT SB.STD_YYYY, SB.SEX, SUBSTR(SB.SGG,1,2) AS ADR, COUNT(DISTINCT
SA.RN_KEY) AS CNT, COUNT(DISTINCT SB.RN_INDI) AS CNT_INDI
FROM SAMPLE.NSC2_M30_1000 AS SA
INNER JOIN SAMPLE.NSC2_BNC_1000 AS SB
ON SA.RN_INDI=SB.RN_INDI AND SB.STD_YYYY='2015'
WHERE SUBSTR(SA.MCARE_DIV_CD,1,5) IN ('AC101','AC103','AC105')
GROUP BY SB.STD_YYYY, SB.SEX, SUBSTR(SB.SGG,1,2)
; QUIT;
```

* SEX : 성별 / SGG : 시군구코드

실습2 - STEP 2 : 진료 건 수, 환자 수

	STD_YYYY	SEX	ADR	CNT	CNT_INDI
1	2015	1	11	81	41
2	2015	1	26	17	13
3	2015	1	27	10	7
4	2015	1	28	15	12
5	2015	1	29	5	4
6	2015	1	30	18	8
7	2015	1	31	11	6
8	2015	1	41	131	56
9	2015	1	42	17	6
10	2015	1	43	5	5
11	2015	1	44	31	16
12	2015	1	45	15	9
13	2015	1	46	35	16
14	2015	1	47	24	16
15	2015	1	48	15	8
16	2015	1	50	12	7
17	2015	2	11	122	47
18	2015	2	26	25	9
19	2015	2	27	15	9
20	2015	2	28	23	11
21	2015	2	29	18	8
22	2015	2	30	4	3
23	2015	2	31	5	5

실습2 - STEP 3 : 진료비, 입•내원 일수

```
PROC SQL;
CREATE TABLE TEST10 AS
SELECT DISTINCT SB.STD_YYYY, CASE WHEN SB.FORM_CD IN ('02','07','10') THEN 1 WHEN
SB.FORM_CD IN ('03','08','09','11') THEN 2 END AS IN_OUT_P
,SUM(ED_RC_TOT_AMT) AS ED_RC_TOT_AMT, SUM(VSHSP_DD_CNT) AS VSHSP_DD_CNT
FROM SAMPLE.NSC2_M30_1000 AS SA
INNER JOIN SAMPLE.NSC2_M20_1000 AS SB
ON SA.RN_KEY=SB.RN_KEY
WHERE SB.STD_YYYY='2015' AND SUBSTR(SA.MCARE_DIV_CD,1,5) IN ('AC101','AC103','AC105')
GROUP BY SB.STD_YYYY, CASE WHEN SB.FORM_CD IN ('02','07','10') THEN 1 WHEN
SB.FORM_CD IN ('03','08','09','11') THEN 2 END
; QUIT;
```

* FORM_CD : 서식코드 / ED_RC_TOT_AMT : 심결요양급여비용총액

* VSHSP_DD_CNT : 입내원 일수

실습2 - STEP 3 : 진료비, 입•내원 일수

	STD_YYYY	IN_OUT_P	ED_RC_TOT_AMT	VSHSP_DD_CNT
1	2002	1	1226990	9
2	2002	2	1925490	22
3	2003	1	6478890	44
4	2003	2	2357470	32
5	2004	1	19200150	155
6	2004	2	1795670	20
7	2005	1	48356030	190
8	2005	2	3479760	45
9	2006	1	29596890	193
10	2006	2	5587050	47
11	2007	1	84974670	406
12	2007	2	5991000	56
13	2008	1	41487230	136
14	2008	2	7233230	92
15	2009	1	52176500	135
16	2009	2	6633880	63
17	2010	1	64786410	172
18	2010	2	6886640	52
19	2011	1	104071020	310
20	2011	2	13324280	96
21	2012	1	35105060	158
22	2012	2	10033140	82
23	2013	1	50231480	183
24	2013	2	7062350	55
25	2014	1	64802610	266
26	2014	2	12005620	80
27	2015	1	57185630	174
28	2015	2	11761530	72

	STD_YYYY	IN_OUT_P	ED_RC_TOT_AMT	VSHSP_DD_CNT
1	2015	1	57185630	174
2	2015	2	11761530	72

감사합니다

h·well
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