국 외 출 장 보 고 서

1. 출 장 자 : 김대중 부연구위원

2. 출장기간 : 2018년 4월 3일 (화) ~ 8일 (일) (4박 6일)

3. 방 문 국 : 프랑스 파리 OECD

4. 출장목적 :

○ IMPACT OF INEQUALITY ON THE FUTURE ELDERLY - POLICY TOOLS AND ACTIONS 발표 및 Technical workshop 참석

○ 참석자

구분	미국	한국(한국보건사회연구원)
참석자	• Dana Goldman 교수(USC) • Mark Pearson (OECD) • Peter Orszag (OECD) • Jack Rowe (Columbia) • Vincenzo Atella (University of Rome Tor Vergata) • Pierre Carl Michaud(University of Montreal HEC) • Maciej Lis (OECD)	• 김대중 부연구위원

5. 출장결과 :

○ FEM 모형 개발 논의
  - 건강행태 변화에 따른 질병예측, 건강불평등, 의료비, 장애 등의 예측을 위한 시스템 프로그래밍 기법 등 공유

6. 세부일정 :

○ 4월 3일(화) 파리도착 도착
○ 4월 4일(수) 발표내용, FEM개발현황 등 사전 논의
○ 4월 5일(목) IMPACT OF INEQUALITY ON THE FUTURE ELDERLY - POLICY TOOLS AND ACTIONS 발표
○ 4월 6일(금) Technical Workshop

Impact of Inequality on the Future Elderly

Policy Tools and Actions in Korea

Daejung Kim

2018. 04. 05.

KIHASA
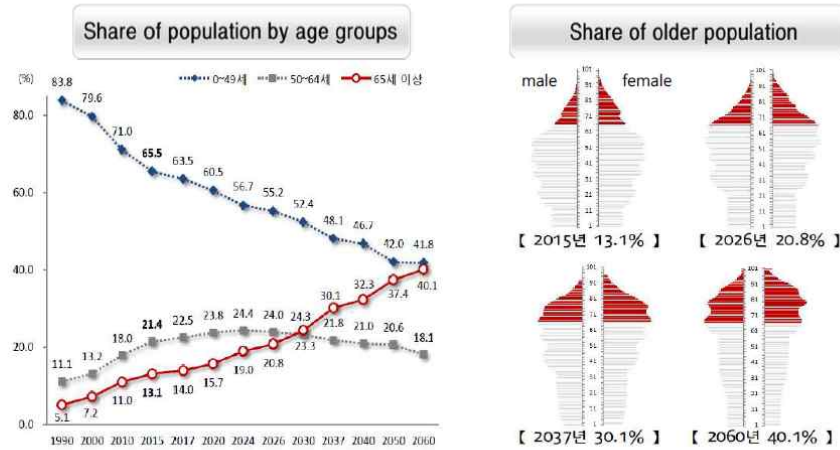한국보건사회연구원
Korea Institute for Health and Social Affairs

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1. Older population and health in Korea

Change in Korean Population Structure

- Share of population age 65+: 2015 13.1% —〉 2020 15.7% —〉 2030 24.3%

Share of population by age groups

Share of older population

【 2015년 13.1% 】 　【 2026년 20.8% 】

【 2037년 30.1% 】 　【 2060년 40.1% 】

Source: National Statistical Office, 2015
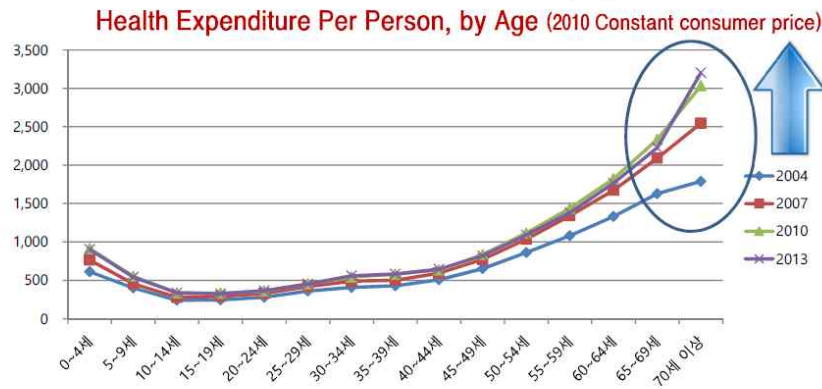
1. Older population and health in Korea

Pace of population ageing in select countries

	Years to reach a certain percentage of the population age 65+			Years to reach the next level of aged society (year)	
	Ageing society (7%)	Aged society (14%)	Super-aged society (20%)	To aged society (7% → 14%)	To super-aged society (14% → 20%)
Korea	2000	2018-> 2017	2026	18	8
Japan	1970	1994	2006	24	12
Germany	1932	1972	2009	40	37
Italy	1927	1988	2008	61	20
USA	1942	2015	2036	73	21
France	1864	1979	2019	115	40

1. Older population and health in Korea

Health expenditure per person

- Proportion of elderly medical expenditure(%): 2005(24.4) -〉 2010(31.6) -〉 2014(35.5)
- Medical expenditure per elderly person(won): 2005(1,545,000) -〉 2010(2,769,000)
  -〉 2014(3,223,000)

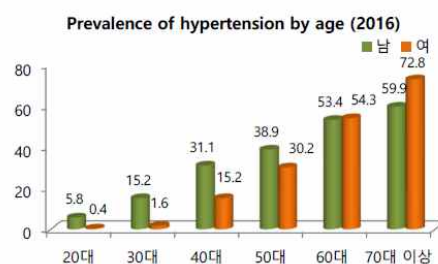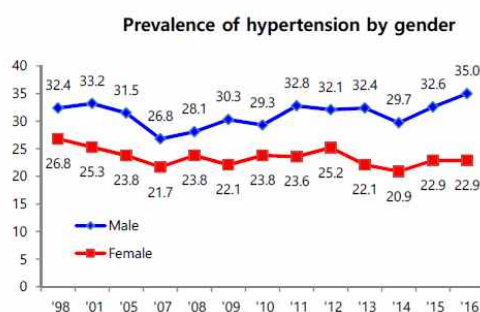**Health Expenditure Per Person, by Age** (2010 Constant consumer price)

Source: Annual health insurance statistics

1. Older population and health in Korea

Prevalence of High Blood Pressure

- Direct correlation with age
- Prevalence has generally increased along with population aging

Prevalence of hypertension by gender

Male: 32.4 33.2 31.5 26.8 28.1 30.3 29.3 32.8 32.1 32.4 29.7 32.6 35.0
Female: 26.8 25.3 23.8 21.7 23.8 22.1 23.8 23.6 25.2 22.1 20.9 22.9 22.9
'98 '01 '05 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16

Prevalence of hypertension by age (2016) 남 여

20대	30대	40대	50대	60대	70대 이상
5.8 / 0.4	15.2 / 1.6	31.1 / 15.2	38.9 / 30.2	53.4 / 54.3	59.9 / 72.8

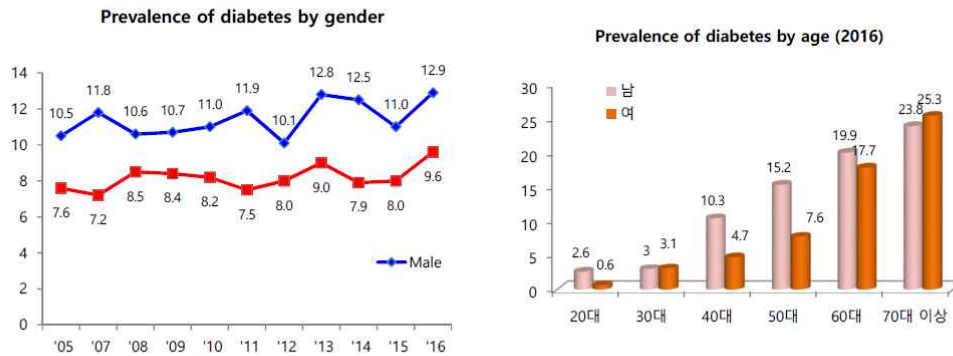Source: Korean National Health and Nutrition Examination Survey
1) Prevalence of High Blood Pressure: Fraction of systolic blood pressure over 140mmHg, or diastolic blood pressure over 90mmHg, or someone over age 30 who has been taking high blood pressure medication.
- Based on AHA (1967), the measurements from 2008, July – 2010 were calculated and compensated with male arm height 83cm and female arm height 81cm (2012) as standards.
* Coefficient of variation : 25-50%

Prevalence of Diabetes

Prevalence of diabetes by gender

Prevalence of diabetes by age (2016)

Source: Korean National Health and Nutrition Examination Survey
1) Prevalence of Diabetes: Fraction of fasting blood glucose higher than 126mg/dL or has been physician diagnosed, or taking hypoglycemic agent or administering insulin
* Coefficient of variation : 25~50%

Prevalence of Hypercholesterolemia

- Risk Factors: obesity, physical inactivity, smoking
- Decline after age 60: decreased smoking and obesity

Prevalence of hypercholesterolemia by gender

Prevalence of hypercholesterolemia by age(2016)
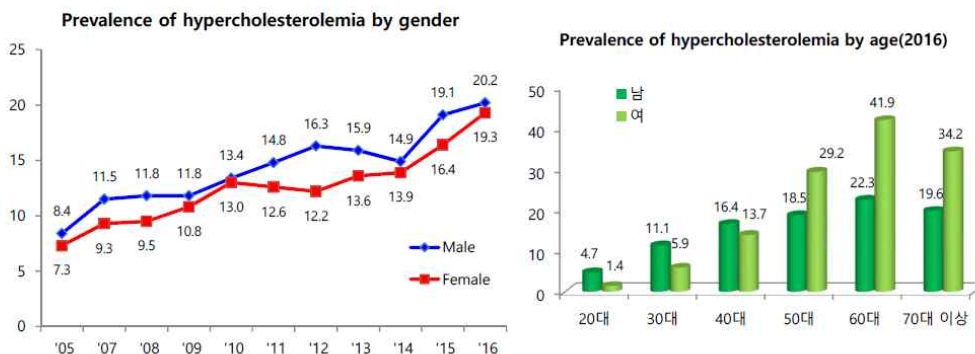
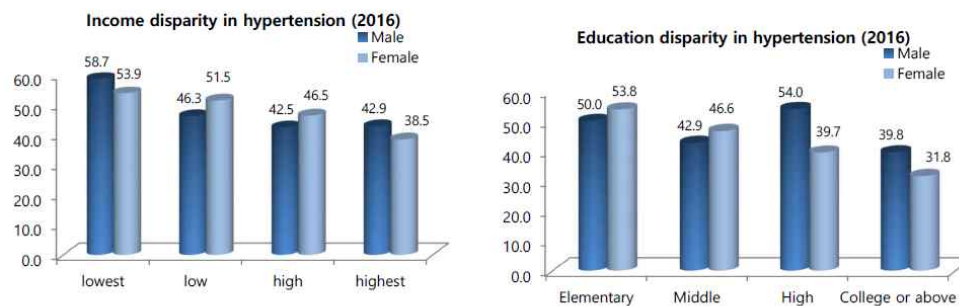Source: Korean National Health and Nutrition Examination Survey
1) Prevalence of Hypercholesterolemia: Fraction of adult over 30 with total cholesterol higher than 240mg/dL or been taking cholesterol depressant
- The data for 1998~2001 is not represented due to lack to research

2. Health inequality of older population in Korea

> Inequality in hypertension prevalence

- There is a significant gradient in the prevalence of hypertension by socioeconomic status
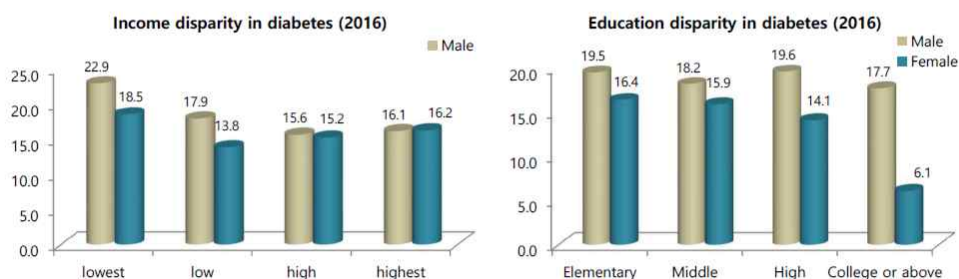
Income disparity in hypertension (2016)

■ Male
■ Female

	lowest	low	high	highest
Male	58.7	46.3	42.5	42.9
Female	53.9	51.5	46.5	38.5

Education disparity in hypertension (2016)

■ Male
■ Female

	Elementary	Middle	High	College or above
Male	50.0	42.9	54.0	39.8
Female	53.8	46.6	39.7	31.8

Source: Korean National Health and Nutrition Examination Survey

1) Income level: Four-quadrant classification of the equalized monthly household income (monthly household income/√ household size)

2) Age was adjusted by direct standardization to the year 2015 Census population

2. Health inequality of older population in Korea

> Inequality in diabetes prevalence

- A socioeconomic gradient in health is also evident for diabetes prevalence
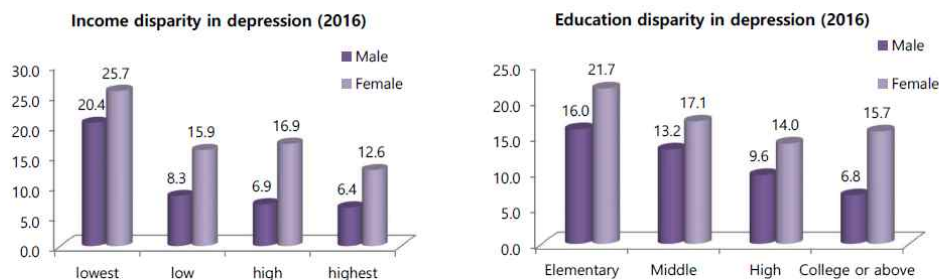
Income disparity in diabetes (2016)

■ Male

	lowest	low	high	highest
Male	22.9	17.9	15.6	16.1
Female	18.5	13.8	15.2	16.2

Education disparity in diabetes (2016)

■ Male
■ Female

	Elementary	Middle	High	College or above
Male	19.5	18.2	19.6	17.7
Female	16.4	15.9	14.1	6.1

Source: Korean National Health and Nutrition Examination Survey

1) Age was adjusted by direct standardization to the year 2015 Census population

⊘ Inequality in prevalence of depression

- The percentage of sadness or despondency that interferes with daily life over two consecutive weeks in the last one year
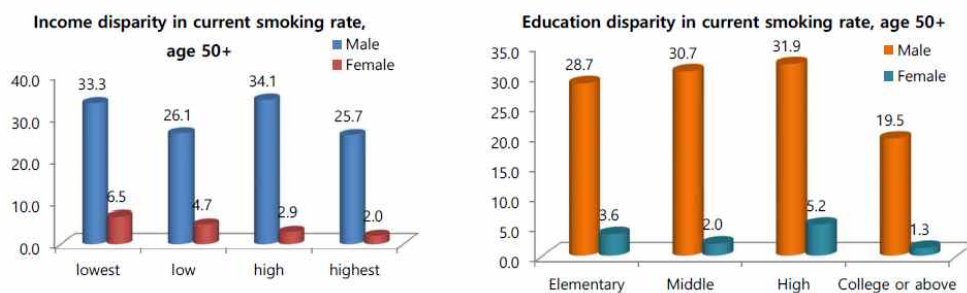
Income disparity in depression (2016)

■ Male
■ Female

lowest: 20.4, 25.7
low: 8.3, 15.9
high: 6.9, 16.9
highest: 6.4, 12.6

Education disparity in depression (2016)

■ Male
■ Female

Elementary: 16.0, 21.7
Middle: 13.2, 17.1
High: 9.6, 14.0
College or above: 6.8, 15.7

Source: Korean National Health and Nutrition Examination Survey
1) Age was adjusted by direct standardization to the year 2015 Census population

⊘ Health inequality in risk factors: Current smoking rate

- Smoking contributes to the socioeconomic disparity in health.
- Men smoke heavily, but higher SES men are more likely to quit smoking as they age.
- Korea needs more measures to encourage quitting smoking, and further study on the barriers to smoking cessation.
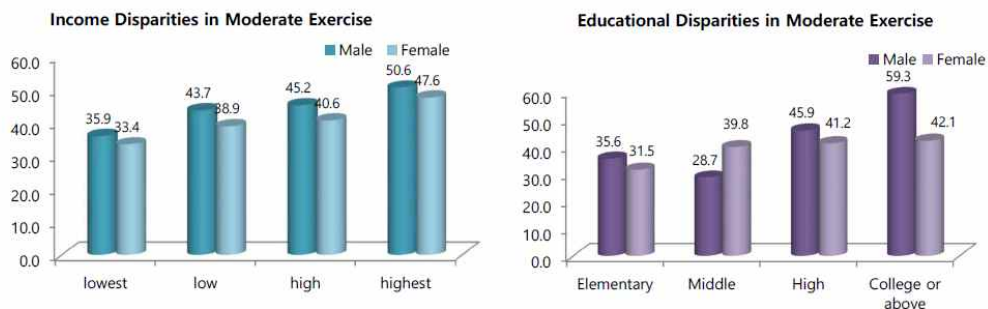
Income disparity in current smoking rate, age 50+

■ Male
■ Female

lowest: 33.3, 6.5
low: 26.1, 4.7
high: 34.1, 2.9
highest: 25.7, 2.0

Education disparity in current smoking rate, age 50+

■ Male
■ Female

Elementary: 28.7, 3.6
Middle: 30.7, 2.0
High: 31.9, 5.2
College or above: 19.5, 1.3

Source: Korean National Health and Nutrition Examination Survey
1) Age was adjusted by direct standardization to the year 2015 Census population

2. Health inequality of older population in Korea

Health inequality in risk factors: Exercise

- Regular physical activity reduces the risk of having depression, diabetes, heart disease, hypertension, obesity, stroke, cancer, etc.

Income Disparities in Moderate Exercise

■ Male ■ Female

	lowest	low	high	highest
Male	35.9	43.7	45.2	50.6
Female	33.4	38.9	40.6	47.6

Educational Disparities in Moderate Exercise

■ Male ■ Female

	Elementary	Middle	High	College or above
Male	35.6	28.7	45.9	59.3
Female	31.5	39.8	41.2	42.1

Source: Korean National Health and Nutrition Examination Survey

1) Moderate exercise: Perform moderate-intensity physical activities for more than 2 hours and 30 minutes per week

2) Age was adjusted by direct standardization to the year 2015 Census population

3. Micro simulation for forecasting of the elderly population health in Korea

- Cohort Simulation Result (Reducing overall smoking prevalence from 50% to 38% across the entire cohort in 2012)
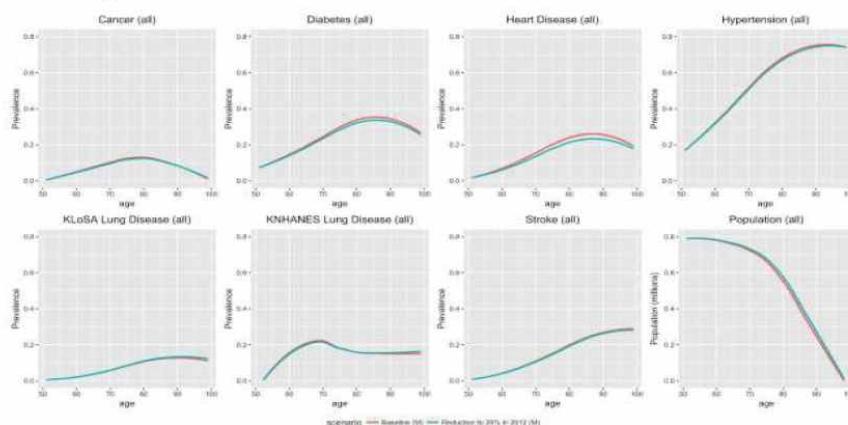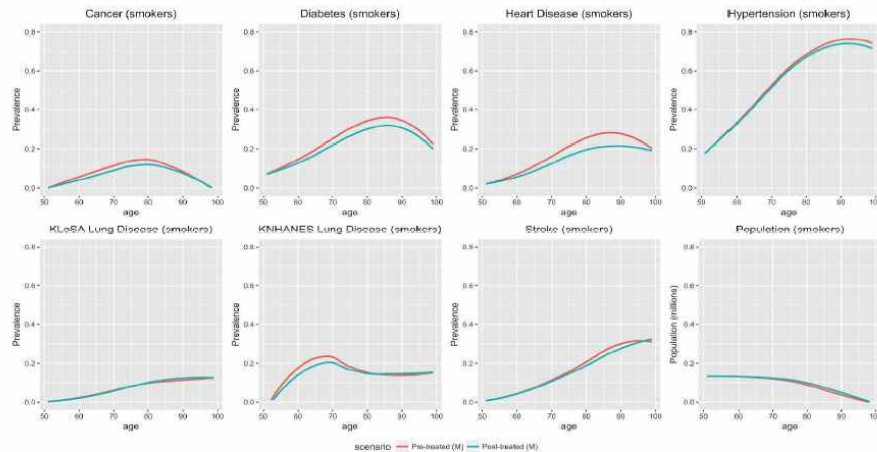 - average treatment effect

Figure 2: Male chronic disease prevalence; Comparison of entire 2012 cohort - baseline versus reduction of male smoking to 29%

- Cohort Simulation Result (Reducing overall smoking prevalence from 50% to 0% across the entire cohort in 2012)
- Treatment on the treated effect

scenario — Pre-treated (M) — Post-treated (M)

⊙ Cohort simulation: Reduce smoking among those age 50–51 in 2012

Decreasing the overall smoking prevalence from 50% to 38% across the entire cohort: Results for **men**, conditional on survival to age 50

Table 1: Cohort simulation lifetime measure results for females conditional on surviving to age 50

Male	Baseline (all)	Smoking intervention (all)	Pre-treated smokers	Post-treated smokers	
Life Expectancy	35.04	35.85	34.81	37.16	2.35 years
Disability-Free Life Years	26.68	27.55	26.44	28.85	2.41 years
Disease-Free Life Years	11.76	12.28	12.17	13.74	

WORKSHOP: IMPACT OF INEQUALITY ON THE FUTURE ELDERLY – POLICY TOOLS AND ACTIONS

APRIL 5-6, 2018

FINAL DRAFT AGENDA (12 DECEMBER 2017)

APRIL 5	POLICY TOOLS AND ACTIONS IMPACT OF INEQUALITY ON THE FUTURE ELDERLY	
TIME	**TOPIC**	**INVITED PRESENTERS**
09:30	*Welcome*	**Mark Pearson** Employment, Labour and Social Affairs, OECD
09:45	*Introduction* *What are the challenges in reducing health and economic inequalities and the concerns about the future?*	**Peter Orszag** Lazard Freres & Co LLC and Brookings Institution
10:15	*Ageing Readiness* *How successfully are societies preparing for ageing populations and what can we do to strengthen today's young adults?*	**Jack Rowe** Columbia University
11:00	*Ageing in Europe* *What are the projections for the future elderly in Europe? What policies may be needed?*	**Vincenzo Atella** University of Rome Tor Vergata **Godwin Mifsud** Working Group on Ageing Populations and Sustainability, European Commission
12:00	*Lunch*	
13:00	*Ageing in Asia* *What are the projections for the future elderly in Japan and Korea? What policies may be needed?*	**Jay Bhattacharya** Stanford University **Daejung Kim** *(invited)* Korea Institute of Health and Social Affairs
14:00	*Ageing in North America* *What are the projections for the future elderly in Canada, Mexico, and the US? What policies may be needed?*	**Pierre-Carl Michaud** Université de Montréal HEC **Rebeca Wong** University of Texas Medical Branch at Galveston **Enrique Vega** World Health Organization/Panamerican Health Organization
15:00	*Break*	

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APRIL 5	POLICY TOOLS AND ACTIONS IMPACT OF INEQUALITY ON THE FUTURE ELDERLY	
15:30	*Health Returns to Education* *How can childhood interventions yield education returns and healthier ageing?*	**James Heckman** University of Chicago **Dana Goldman** University of Southern California
16:15	*Health and Retirement* *What does the future hold under current policies? What might we want to change?*	**Maciej Lis** Social Policy Division, OECD **Walter Ricciardi** Catholic University of the Sacred Heart
17:00	*Synthesis* *How can we capitalize upon modelling tools and results to help countries to reduce inequalities and to promote healthy and productive societies?*	**Dana Goldman** University of Southern California
17:30	*End*	

APRIL 6	TECHNICAL WORKSHOP MICROSIMULATION: DEVELOPMENT OF THE GLOBAL FUTURE ELDERLY MODEL	
TIME	TOPIC	INVITED PRESENTERS
09:30	*Technical Overview* *How are microsimulations structured, what kind of questions can be addressed, and how well have these models performed in the past?*	**Bryan Tysinger** University of Southern California
10:45	*Break*	
11:00	*Technical Working Section* *A hands-on training for the technical audience.*	**Bryan Tysinger** University of Southern California
13:00	*End*	