Alteration of child sleep in Japan from 2000 to 2010.

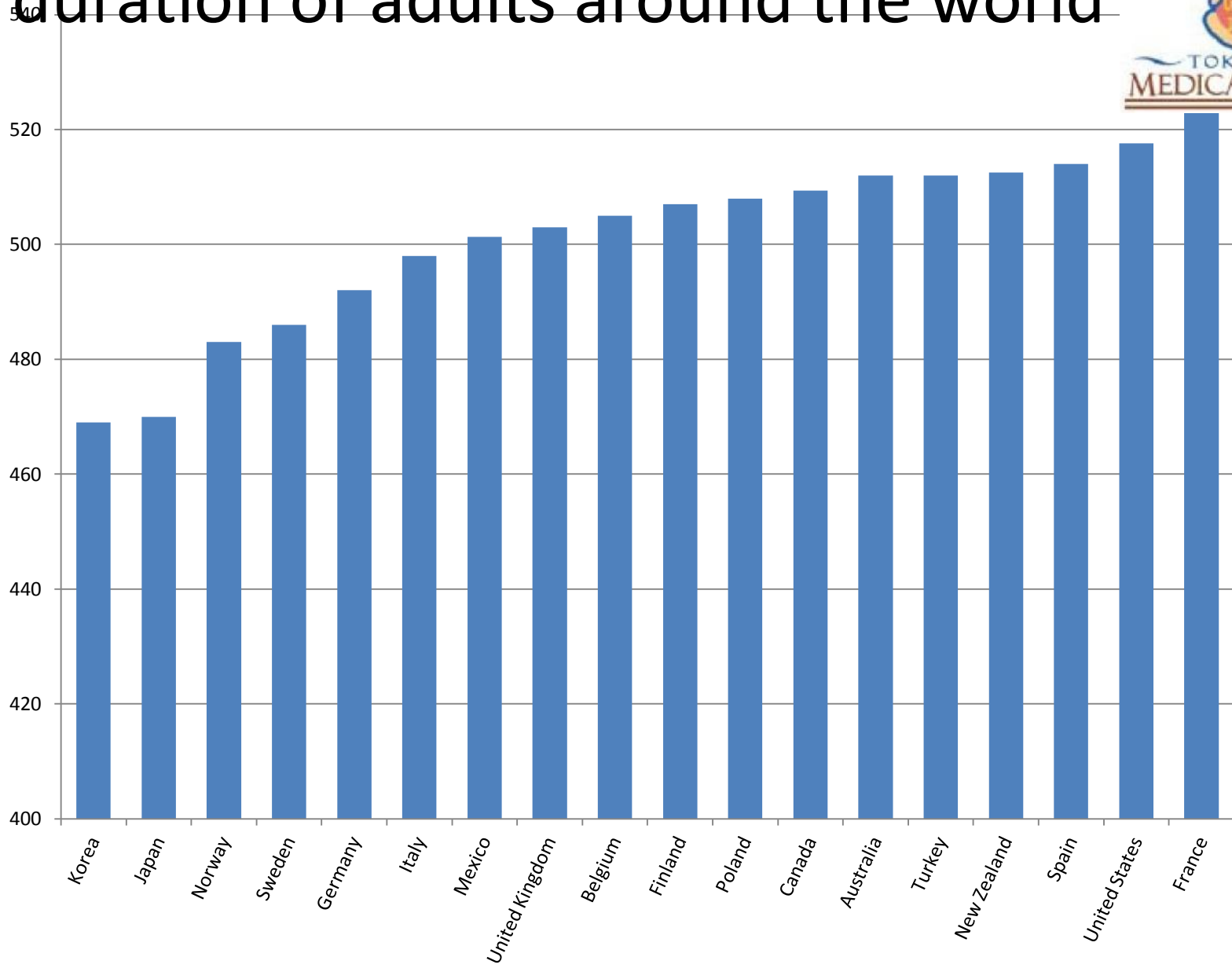
Jun Kohyama, MD. PhD,

CEO

Tokyo Bay Urayasu/Ichikawa Medical Center

Sleep duration of adults around the world

Australia
Belgium
Canada
Finland
France
Germany
Italy
Japan
Norway
Korea
Mexico
New Zealand
Poland
Spain
Sweden
Turkey
UK
USA



http://www.sourceoecd.org/pdf/societyataglance2009/812009011e-02.pdf

Sleep Duration and Health in Young Adults

Andrew Steptoe, PhD, DSc; Victoria Peacey, MSc; Jane Wardle, PhD

Background: Both long and short sleep durations have been associated with negative health outcomes in middle-aged and older adults. This study assessed the relationship between sleep duration and self-rated health in young adults.

Methods: Using anonymous questionnaires, data were collected from 17 465 university students aged 17 to 30 years who were taking non–health-related courses at 27 universities in 24 countries. The response rate was greater than 90%. Sleep duration was measured by self-report; the health outcome was self-rated health; and age, sex, socioeconomic background, smoking, alcohol consumption, body mass index, physical activity, depression (Beck Depression Inventory), recent use of health services, and country of origin were included as covariates.

Results: Sixty-three percent of respondents slept for 7 to 8 hours; 21% were short sleepers (6%, <6 hours; 15%, 6-7 hours); and 16% were long sleepers (10%, 8-10 hours; 6%, >10 hours). Compared with the reference category (7-8 hours), the adjusted odds ratio of poor health was 1.56 (95% confidence interval [CI], 1.22-1.99) for respondents sleeping 6 to 7 hours and 1.99 (95% CI, 1.31-3.03) for those sleeping less than 6 hours. The same significant pattern was seen when the results were analyzed separately by sex. When respondents from Japan, Korea, and Thailand (characterized by relatively short sleep durations) were excluded, the adjusted odds ratios were 1.33 (95% CI 1.03-1.73) and 1.62 (95% CI, 1.06-2.48) for those sleeping 6 to 7 hours and less than 6 hours, respectively. There were no significant associations between self-rated health and long sleep duration.

Conclusion: Our data suggest that short sleep may be more of a concern than long sleep in young adults.

Arch Intern Med. 2006;166:1689-1692

Table 1. Mean Sleep Duration and Self-rated Health by Country and Sex

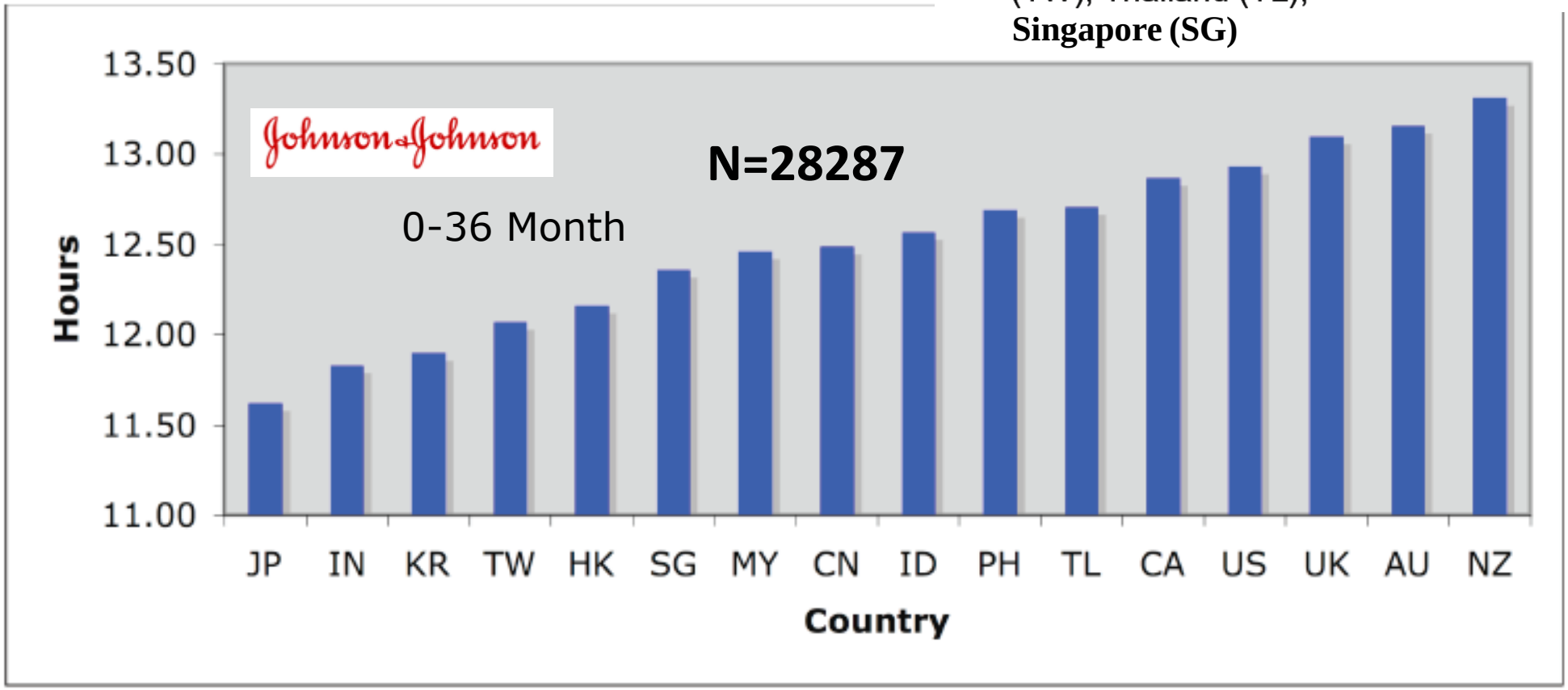
Country	Men			Women		
	Mean Sleep Duration, h (95% CI)	No.	Poor Self-rated Health, %	Mean Sleep Duration, h (95% CI)	No.	Poor Self-rated Health, %
Belgium	7.69 (7.54-7.84)	244	7.4	7.90 (7.76-8.04)	261	7.3
Bulgaria	7.81 (7.68-7.93)	336	10.4	8.00 (7.88-8.12)	377	14.1
Colombia	7.14 (7.02-7.26)	378	4.0	7.24 (7.11-7.37)	325	6.5
England	7.40 (7.29-7.52)	372	8.3	7.37 (7.24-7.49)	330	10.0
France	7.55 (7.42-7.68)	312	6.4	7.73 (7.60-7.86)	322	13.4
Germany	7.39 (7.26-7.52)	309	10.4	7.60 (7.48-7.71)	372	6.5
Greece	7.86 (7.74-7.98)	350	3.7	7.87 (7.75-7.99)	371	7.5
Hungary	7.55 (7.39-7.71)	216	8.8	7.55 (7.42-7.68)	323	12.4
Iceland	7.21 (7.07-7.34)	294	7.1	7.56 (7.43-7.68)	337	6.8
Ireland	7.21 (6.98-7.44)	97	11.3	7.67 (7.55-7.80)	329	8.2
Italy	7.58 (7.49-7.67)	641	8.0	7.71 (7.64-7.78)	1092	14.5
Japan	6.20 (6.03-6.38)	172	38.4	6.09 (5.92-6.26)	186	45.7
Korea	6.80 (6.64-6.96)	208	35.6	6.86 (6.75-6.97)	440	42.7
Netherlands	7.79 (7.65-7.92)	275	8.7	7.92 (7.81-8.04)	404	8.9
Poland	7.24 (7.11-7.37)	312	4.5	7.42 (7.30-7.53)	390	10.5
Portugal	7.72 (7.61-7.83)	431	10.7	7.84 (7.73-7.95)	431	16.0
Romania	8.04 (7.91-8.16)	337	12.8	7.72 (7.60-7.84)	365	27.9
Slovak Republic	7.76 (7.66-7.86)	511	8.6	7.59 (7.50-7.68)	663	9.8
South Africa	7.26 (7.12-7.40)	268	14.2	7.71 (7.57-7.84)	289	12.8
Spain	8.02 (7.87-8.18)	215	6.0	7.82 (7.68-7.97)	257	7.4
Taiwan	6.61 (6.43-6.79)	162	18.5	6.51 (6.33-6.68)	171	31.0
Thailand	6.95 (6.82-7.08)	306	25.2	7.08 (6.98-7.18)	520	23.3
United States	7.17 (7.07-7.28)	463	4.3	7.08 (7.01-7.15)	1069	4.7
Venezuela	7.32 (7.19-7.44)	323	2.8	7.31 (7.18-7.44)	309	3.9
Total	7.45 (7.29-7.60)	**7532**	10.1	7.49 (7.32-7.65)	**9933**	13.6

Abbreviation: CI, confidence interval.

Total sleep time

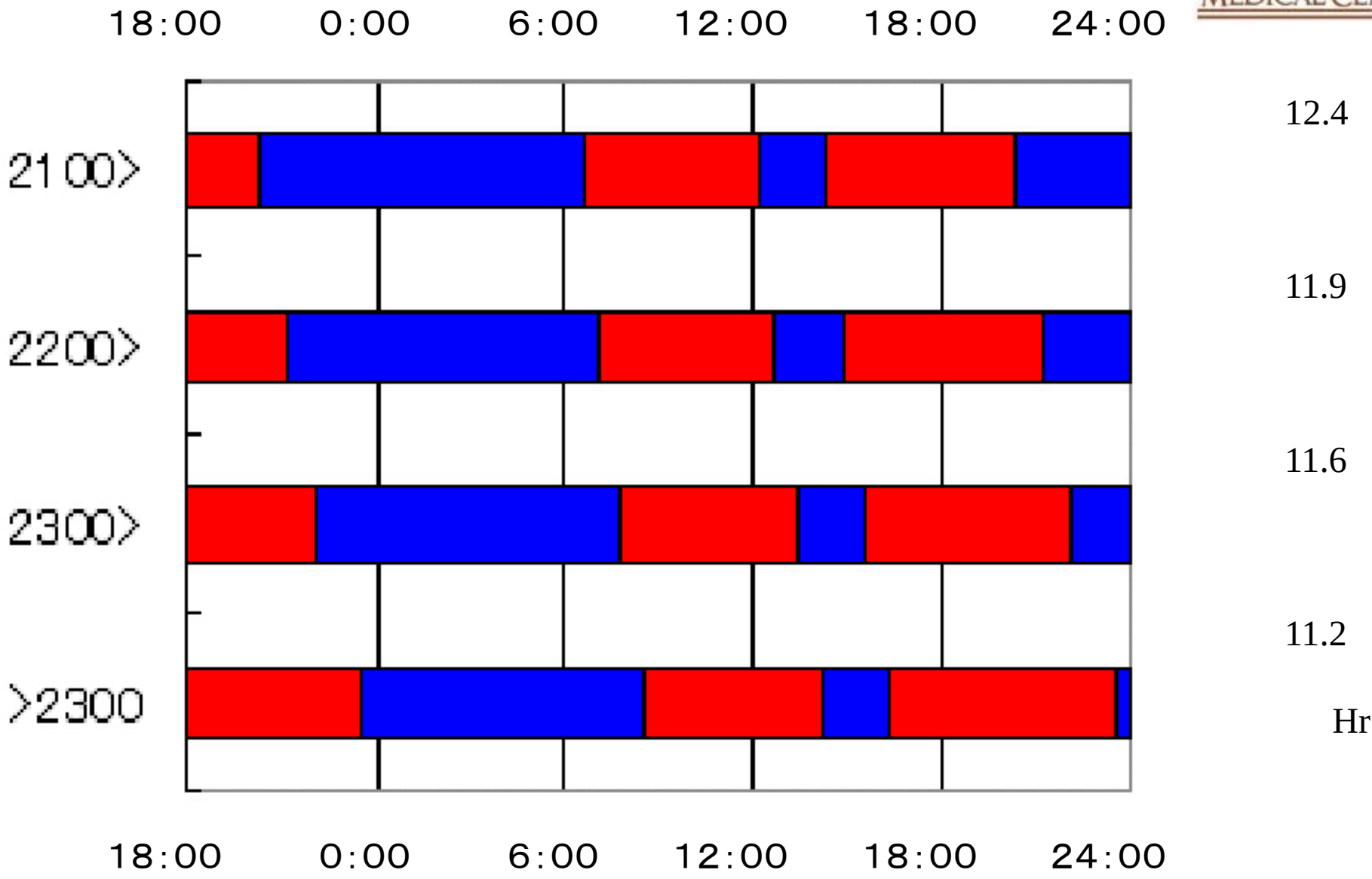
Nighttime sleep + daytime sleep

- Predominantly Caucasian = 7960
  - United States (US), Canada (CA), United Kingdom (UK), Australia (AU), New Zealand (NZ)
- Predominantly Asian = 20,327
  - China (CN), Hong Kong (HK), India (IN), Indonesia (ID), Japan (JP), Korea (KR), Malaysia (MY), Philippines (PH), Taiwan (TW), Thailand (TL), **Singapore (SG)**

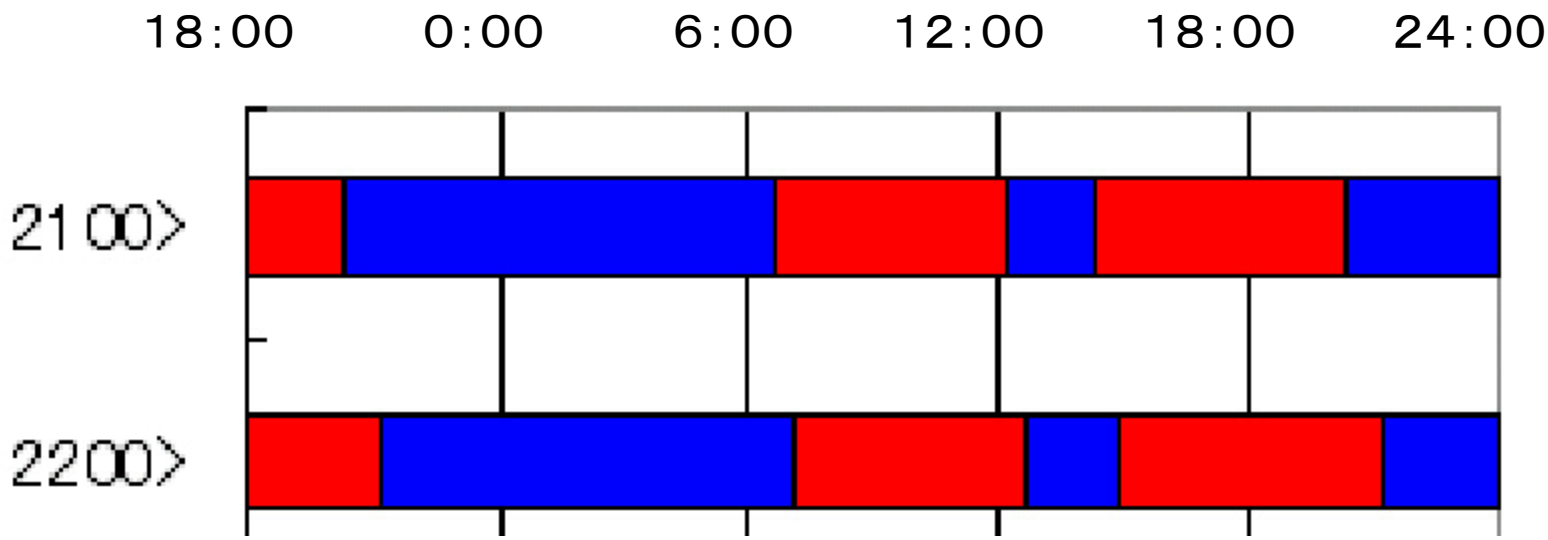


Sleep duration of babies in Japan is the shortest around the world.

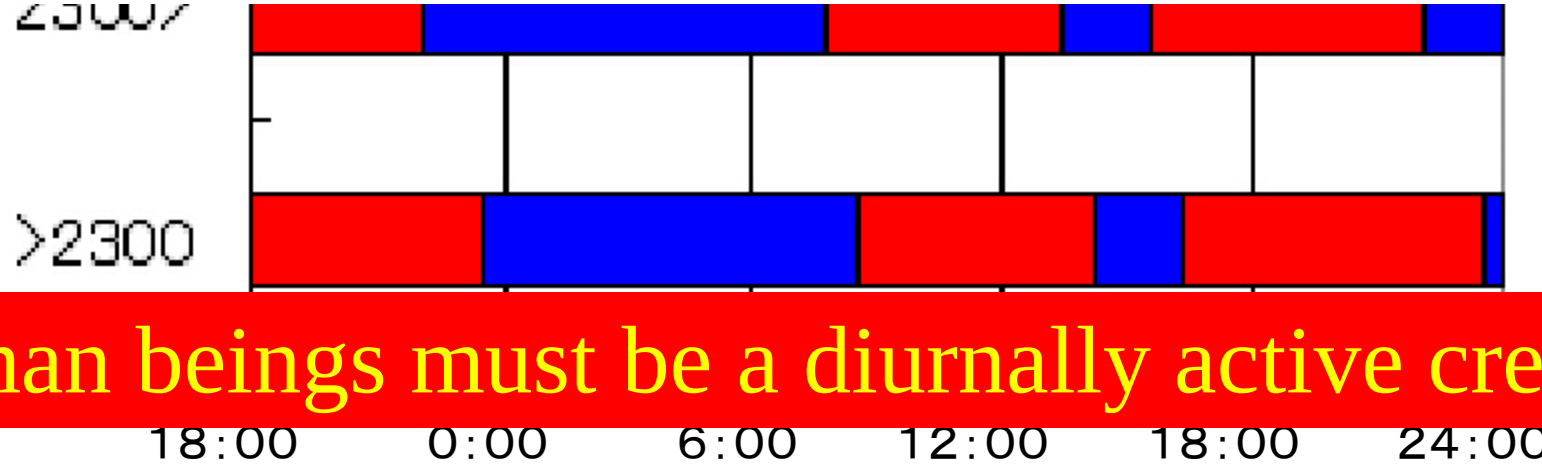
Sleep-wake cycle of 18mo babies



Sleep-wake cycle of 18mo babies



Sleep duration is decreased by late bedtime



Human beings must be a diurnally active creature

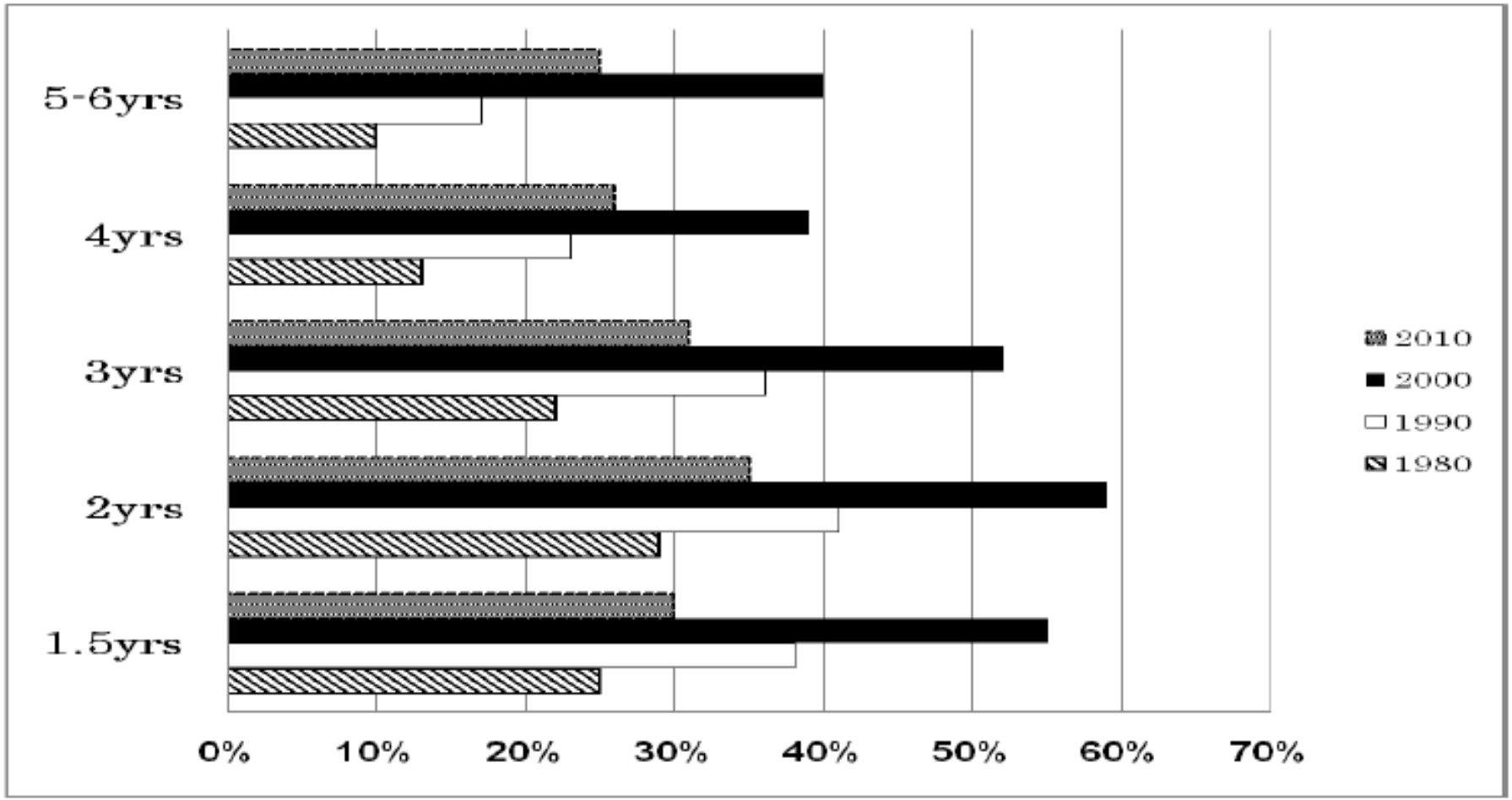
TOKYO BAY MEDICAL CENTER

Introduction:

In 2000, 49% of children in Japan aged 18 to 83 months fell into sleep 10 pm or later (Fig. 1). The rate in 2010 was 30% (Fig. 1).

TOKYO BAY MEDICAL CENTER

Figure 1 **Rates of children who fell into sleep 10 pm or later in Japan.**



Made from The Japanese Society of Child Health. (2011) Investigation on the health of young children in 2010 (in Japanese). *The Journal of Child Health*, 70:448-457.

TOKYO BAY MEDICAL CENTER

Introduction:

In 2000, 49% of children in Japan aged 18 to 83 months fell into sleep 10 pm or later (Fig. 1). The rate in 2010 was 30% (Fig. 1). I am the founding member of web site named hayaoki site (Fig. 2) opened in 2002. Hayaoki means "wake up early in the morning" in Japanese. Hayaoki site is undoubtedly the first runner for the promotion to keep bedtime early, to wake up early, and to secure enough sleep duration for children in Japan. In this paper, I will look back these almost 10 years and view the next several years regarding child sleep in Japan.

TOKYO BAY MEDICAL CENTER

Figure 2 Top pages of hayaoki site (http://www.hayaoki.jp).

Bright expressions of children make this country beautiful.

Focusing on the sleep-wakeful cycles of children in Japan, we will try to improve living circumstance of children.

We should support what we can do now for the future of children.

TOKYO BAY MEDICAL CENTER

Beginning of the campaign:

Our campaign is consistent with recent scientific findings of the importance of sleep health practices (4+α ; 1. Increase exposure to morning light. 2. Engage in physical activity during daytime. 3. Sleep in the dark during the night. 4. Eat regular meals. +α Avoid substances that disturb sleep (e.g., caffeine, alcohol, nicotine) and excessive media exposure.) (Table 1).

TOKYO BAY MEDICAL CENTER

Table 1 Sleep health 4+α

1. Increase exposure to morning light.
2. Engage in physical activity during daytime.
3. Sleep in the dark during the night (*i.e.*, turn off all artificial lighting).
4. Eat regular meals.

+α Avoid substances that disturb sleep (*e.g.*, caffeine, alcohol, nicotine) and excessive media exposure (*e.g.*, video games, computers, television)

TOKYO BAY MEDICAL CENTER

Beginning of the campaign:

Our campaign is consistent with recent scientific findings of the importance of sleep health practices (4+α ; 1. Increase exposure to morning light. 2. Engage in physical activity during daytime. 3. Sleep in the dark during the night. 4. Eat regular meals. +α Avoid substances that disturb sleep (e.g., caffeine, alcohol, nicotine) and excessive media exposure.) (Table 1). We, members of hayaoki site, have had more than 100 lectures a year all around Japan. Since our promotion has been based on the scientific issues, many parents, health care takers, nursery school teachers and nurses have listened to our explanation.

TOKYO BAY MEDICAL CENTER

Spread of the campaign:

In 2006, we were asked to join the national-wide promotion to keep bedtime early, to wake up early and to take breakfast, organized by the Ministry of Education, Culture, Sports, Science and Technology (Fig. 3).

Figure 3

In 2002, we started web site, hayaoki site. Hayaoki means "wake up early in the morning" in Japanese.

The Ministry of Education, Culture, Sports, Science and Technology has begun a nation wide promotion to keep bedtime early, to wake up early and to take breakfast in 2006.

http://www.hayaoki.jp

TOKYO BAY MEDICAL CENTER

Spread of the campaign:

In 2006, we were asked to join the national-wide promotion to keep bedtime early, to wake up early and to take breakfast, organized by the Ministry of Education, Culture, Sports, Science and Technology (Fig. 3). Tokyo Metropolitan (Fig. 4) has also begun promotion to keep bedtime early, to wake up early, and to secure enough sleep duration for children in 2008.

Figure 4

1

Day kid & night kid

2

1. It is important to wake up early in the morning and go to bed early in the night. Let's improve child daily life rhythms.

1.The reason why wake up early in the morning and go to bed early in the night are important.

2. Let's begin with waking-up early in the morning.

3. Let's check the whole life customs.

2. Don't you keep your kids awake until late in the night (until the time for adults)?
Graph shows rate of 3-year-old children who fell asleep later than 10 pm.

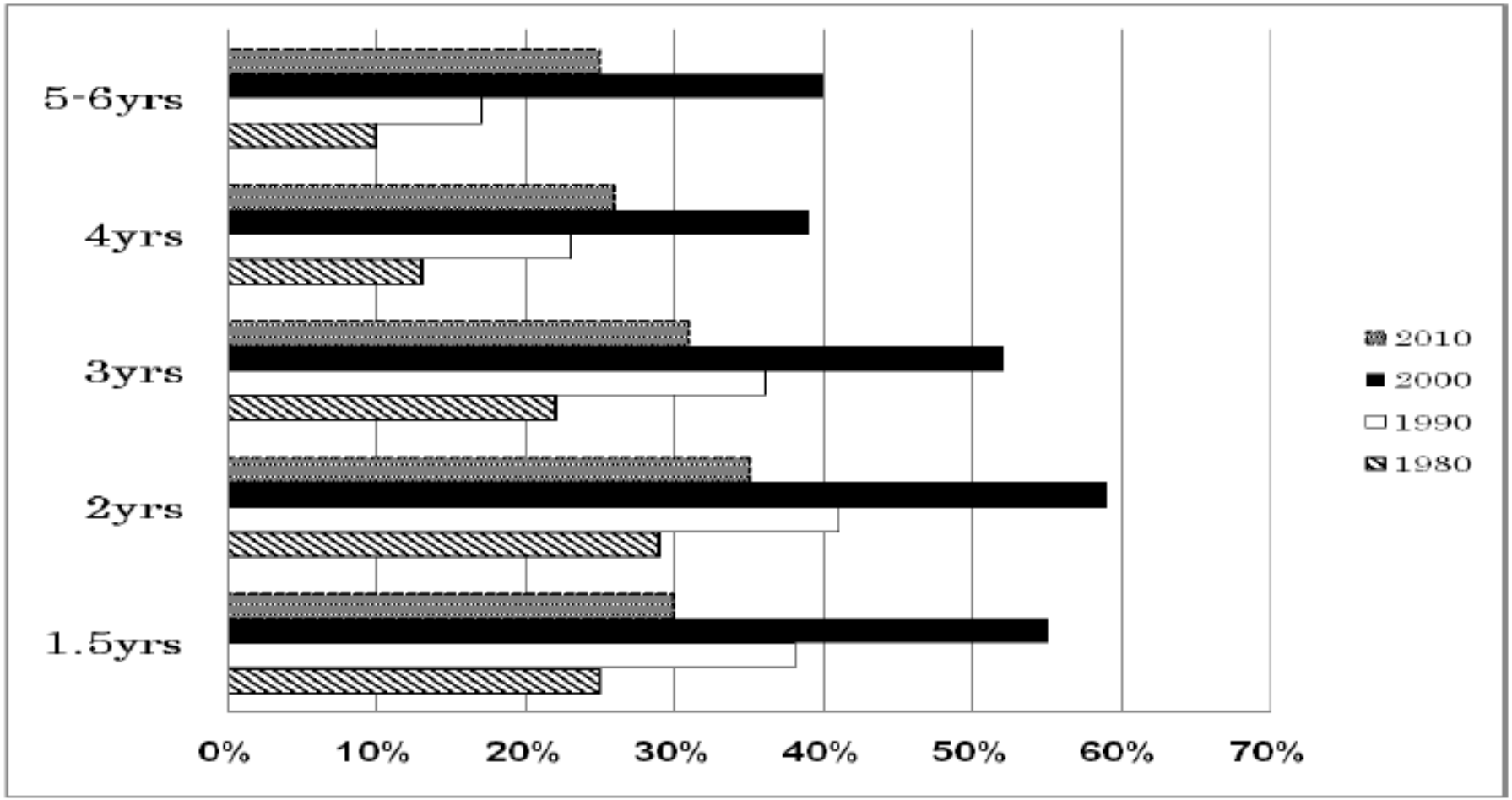
TOKYO BAY MEDICAL CENTER

Spread of the campaign:

In 2006, we were asked to join the national-wide promotion to keep bedtime early, to wake up early and to take breakfast, organized by the Ministry of Education, Culture, Sports, Science and Technology (Fig. 3). Tokyo Metropolitan (Fig. 4) has also begun promotion to keep bedtime early, to wake up early, and to secure enough sleep duration for children in 2008. Finally, 30% of children in Japan aged 18 to 83 months was found to fall into sleep 10 pm or later in 2010 (Fig. 1). It seems that our promotion have reached a goal.

TOKYO BAY MEDICAL CENTER

Figure 1 **Rates of children who fell into sleep 10 pm or later in Japan.**



Made from The Japanese Society of Child Health. (2011) Investigation on the health of young children in 2010 (in Japanese). *The Journal of Child Health*, 70:448-457.

TOKYO BAY MEDICAL CENTER

Prospects:

In spite of obtaining the goal, I am not satisfied on the sleep situation of children in Japan. I indicate four points. 1. Short sleep duration (Table 2). 2. Short nap duration (Table 2).

TOKYO BAY MEDICAL CENTER

Table 2 Sleep duration and sleep onset time among 17 countries/regions

	Nap duration	Total sleep duration (nap + night sleep)	Sleep onset time
Australia	2.99	13.16	19:43
Canada	2.90	12.87	20:44
China	3.00	12.49	20:57
Hong Kong	3.14	12.16	22:17
Indonesia	3.36	12.57	20:27
India	3.41	11.83	22:11
Japan	2.19	11.62	21:17
Korea	2.49	11.90	22:06
Malaysia	3.27	12.46	21:47
New Zealand	2.70	13.31	19:28
Philippine	3.53	12.69	20:51
Singapore	3.11	12.36	21:38
Thai	2.81	12.71	20:53
Taiwan	3.34	12.07	22:09
UK	2.61	13.10	19:55
USA	3.18	12.93	20:52
Vietnam	3.67	12.99	21:44

Made from Mindell JA, Sadeh A, Wiegand B, et al. Cross-cultural differences in infant and toddler sleep. Sleep Med 2010;11:274-280.

TOKYO BAY MEDICAL CENTER

Prospects:

In spite of obtaining the goal, I am not satisfied on the sleep situation of children in Japan. I indicate four points. 1. Short sleep duration (Table 2). 2. Short nap duration (Table 2). 3. Lack of education on sleep (Fig. 5).

Figure 5 Lack of education on sleep

TOKYO BAY MEDICAL CENTER

Mindell JA, Bartle A, Wahab NA, Ahn Y, Ramamurthy MB, Huong HT, Kohyama J, Ruangdaraganon N, Sekartini R, Teng A, Goh DY.

Sleep education in medical school curriculum: A glimpse across countries. Sleep Med. 2011 Sep 15. [Epub ahead of print]

The Children's Hospital of Philadelphia and Saint Joseph's University, Philadelphia, PA, USA.

Abstract

BACKGROUND: The objective of this study was to assess the prevalence of education about sleep and sleep disorders in medical school education and to identify barriers to providing such education.

METHODS: Surveys were sent to 409 medical schools across 12 countries (Australia, India, Indonesia, Japan, Malaysia, New Zealand, Singapore, South Korea, Thailand, United States, Canada and Viet Nam).

RESULTS: Overall, the response rate was 25.9%, ranging from 0% in some countries (India) to 100% in other countries (New Zealand and Singapore). Overall, the average amount of time spent on sleep education is just under 2.5h, with 27% responding that their medical school provides no sleep education. Three countries (Indonesia, Malaysia, and Viet Nam) provide no education, and only Australia and the United States/Canada provide more than 3h of education. Paediatric topics were covered for a mere 17min compared to over 2h on adult-related topics.

CONCLUSION: These results suggest that there continues to be very limited coverage of sleep in medical school education despite an incredible increase in acknowledgement of the importance of sleep and need for recognition of sleep disorders by physicians.

In Japan, replies were obtained from 42 out of 80 medical colleges, and 28 out of 42 colleges had no education on child sleep. The average time on child sleep among 14 colleges was 40 minutes (range; 5-90 minutes).

TOKYO BAY MEDICAL CENTER

Prospects:

In spite of obtaining the goal, I am not satisfied on the sleep situation of children in Japan. I indicate four points. 1. Short sleep duration (Table 2). 2. Short nap duration (Table 2). 3. Lack of education on sleep (Fig. 5). 4. Side effects of national-wide campaign (Fig. 6).

TOKYO BAY MEDICAL CENTER

Figure 6 Side effects of national-wide campaign

After the support of government has begun, many school teachers have been eager to join the project. With increasing participants, the mean tended to be altered into the purpose. Those who do not completely recognize the scientific base of the reason to keep bedtime early and to wake up early tend to seek the sole issue; to wake up early in the morning. As a result, even youngsters who had a late bedtime are forced to wake up early in the morning by teachers. We have to keep providing accurate knowledge on sleep.

TOKYO BAY MEDICAL CENTER

Conclusion:

We should keep spreading the basic knowledge on sleep to parents, pediatricians, family doctors, health care takers, nursery school teachers, nurses and policymakers.