
OPERATIONAL MANUAL FOR DENTAL OFFICERS AND DENTAL NURSES

GINGIVAL INDEX FOR SCHOOLCHILDREN (GIS)



**ORAL HEALTH DIVISION
MINISTRY OF HEALTH MALAYSIA**

2013

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Foreword By
The Principal Director of Oral Health
Ministry of Health Malaysia



In our endeavour to improve the oral health status of Malaysians, it is imperative that the delivery of oral healthcare is rationalized based on evidence of needs of the population. As such, data from national epidemiological surveys as well as annual service delivery data are analysed to plan and implement delivery of school oral health services.

Discrepancies in findings of periodontal conditions between the National Oral Health Survey of Schoolchildren 2007 (NOHSS 2007) and annual service data gave rise to concerns on the accuracy of the school dental service data. Hence, the index for the assessment of gingival status has been reviewed and modified to improve the accuracy of data collected.

This manual will serve as a guide for all dental operators to apply the modified index to achieve accurate diagnosis of the gingival status among schoolchildren. Subsequently, strategies and activities can be better adjusted to meet the oral healthcare needs of children.

I express my sincere appreciation on the commendable efforts of the committee responsible for the development of this Operational Manual for Dental Officers and Dental Nurses on Gingival Index for Schoolchildren.

A handwritten signature in black ink, appearing to be 'Khairiyah'.

(DR KHAIRIYAH BINTI ABD MUTTALIB)

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Acknowledgement

The Oral Health Division, Ministry of Health Malaysia extends its heartfelt appreciation and gratitude to the Steering Committee and everyone who has contributed in one way or another to the preparation of this operational manual.

- Chairman :** Dr Khairiyah bt Abd Muttalib
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1. BACKGROUND

Gingival status is one of the indicators assessed in the Incremental Dental Care Programme in schools. Currently, the delivery of oral healthcare for schoolchildren is guided by the ‘Guidelines on Oral Healthcare for Schoolchildren’ whereby ‘gingivitis-free mouth’ is assessed using 6 surfaces of 6 index teeth¹. A marked difference was observed between the data on gingival status of schoolchildren obtained from national surveys^{2,3,4} and data from the Health Information Management System (HIMS)^{5,6}. To address the issue of the sensitivity of the index currently used among schoolchildren, a study comparing gingivitis-free status using the 6-surfaces (as used in HIMS) versus the 12-surfaces (modified index) of 6 index teeth was undertaken in July 2011.

Although the 12-surface index was found to be more sensitive in detecting gingivitis, it is time consuming on a population level. As the biggest difference was found in the lower left incisor tooth, a 7-surface index was tested. The modified 7-surface index was able to detect 99.14% of the gingivitis cases in the population and was comparable to the results of the 12-surface index. The study concluded that the 7-surface index would be more practical in assessing the gingival status as it is more sensitive than the 6-surface index and yet produce results as equally sensitive as the 12-surface index and in less time.

This 7-surface index was subsequently named The Gingival Index for School Children (GIS) and was approved for use at the Mesyuarat Jawatankuasa Dasar dan Perancangan Kesihatan Pergigian 1/2013 to evaluate gingival status of schoolchildren. Hence, this document is intended to facilitate the use of GIS in assessing the gingival status among schoolchildren.

1 Oral Health Division, Ministry of Health Malaysia. Oral Healthcare for Schoolchildren in Malaysia, 2006

2 Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey for Schoolchildren 2007 (NOHSS 2007) - 12 year olds, 2010.

3 Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey for Schoolchildren 2007 (NOHSS 2007) - 16 year olds, 2010

4 Oral Health Division, Ministry of Health Malaysia. Preliminary Report of National Oral Health Survey of Adults 2010, 2013.

5 Health Informatics Centre Planning and Development Division, Ministry of Health Malaysia. Annual Report Health Information Management System (Oral Health Sub System), 2007.

6 Health Informatics Centre Planning and Development Division, Ministry of Health Malaysia. Annual Report Health Information Management System (Oral Health Sub System), 2010.

2. OBJECTIVES

General Objective

To ensure clinical operators (Dental Officers and Dental Nurses) have common understanding, interpretation and application of the 7-Surface Gingival Index for Schoolchildren to assess gingival status.

Specific Objectives

- i. To attain standardization of the 7-surface GIS among clinical operators.
- ii. To assess the gingival status of schoolchildren based on GIS.
- iii. To record and monitor data on the gingival status of schoolchildren.

3. SCOPE

The procedures and processes for the assessment of gingival status outlined in this manual shall be adhered to by all clinical operators.

4. IMPLEMENTATION

Implementation involves standardization in understanding, interpretation and application of GIS. The GIS index shall be applied in the Malaysian school incremental dental care programme effective from 1 January 2014.

5. EXAMINATION PROCEDURES

Examine all index teeth 16, 11, 26, 31 and 46 and their specified surfaces as below

Buccal 16	Labial 11		Buccal 26
46 Lingual		31 Labial and Lingual (record the higher of two scores)	36 Lingual

- Examine only fully erupted teeth
A tooth is deemed to be fully erupted when its occlusal or incisal surfaces have reached the occlusal plane.
- Do not examine teeth which have been indicated for extraction.
- Alternative teeth
If an index tooth is missing or not fully erupted, examine the adjacent tooth.

Eg: If 6 (first molar) is not present, examine the adjacent 7 (second molar) . If 7 is not present, record the highest score of the adjacent 1st or 2nd premolar or the adjacent Es or Ds, whichever is present

Eg: If 11 or 51 is not present, examine the contralateral tooth i.e. 21 or 61. If 11/51 and 21/61 are missing, record the highest score of the remaining teeth within the same sextant.

Visually examine the index teeth for obvious presence of calculus and/or gingivitis. A cotton pellet may be used to remove food debris. When in doubt, record the lower score.

6. SCORING CRITERIA

Record the scores for index teeth in the indicated boxes. For 31, record the higher of the two scores for the labial and lingual surfaces

Scoring Criteria for Index teeth

- 0 = No gingivitis, No calculus
- 1 = No gingivitis, With calculus
- 2 = With gingivitis, No calculus
- 3 = With gingivitis, With calculus

Buccal 16	Labial 11	Buccal 26
46 Lingual	31 Labial and Lingual (record the higher of two scores)	36 Lingual

GIS Score

The highest score for all index teeth will be the GIS Score for the subject.

*However, if there is a combination of score 1 and 2 among index teeth, then the GIS score is 3

	Index Teeth						GIS Score
	16	11	26	36	31	46	
Index Tooth Score	0	0	0	0	0	0	0
	1	0	0	1	1	1	1
	0	2	2	0	0	2	2
	0	3	3	0	0	0	3
	1	0	2	2	1	0	3*
	0	1	2	3	3	2	3

Gingivitis-Free Mouth (Mulut Bebas Gingivitis - MBG)

Gingivitis-Free Mouth refers to the absence of gingivitis and calculus.

If GIS Score is 0, record 1 for MBG in PG 307.

If GIS Score is 1, 2 or 3, record 0 for MBG in PG 307.

GIS Score	MBG in PG 307
0	1
1,2,3	0

7. DATA COLLECTION

Record scores in the modified LP8 card as below.

Record the scores for index teeth (for 31, record the higher of the two scores)

Record the GIS Score and MBG Score in the indicated boxes.

Tahun/Tingkatan:		Nama Pesakit:		Tarikh Pemeriksaan:	
No. Kad Pengenalan / Sijil Lahir / Lain-lain: -					
Kebersihan Mulut (Isikan Score)					
Score					
Plak					
GIS Score 0, 1, 2 atau 3					
Gingivitis (G) (Tanda 0 atau 1)					
GIS MBG					
16 (b) 11 (lab) 26 (b) 46 (ling) 31 (lab) 36 (ling)					
Jumlah Score					
D d M f F x X dx DMFX X+M					
KM ASF PSF G DMFX Jumlah gigi kekal yang ada					
DENTUR: (Tanda 0 atau 1)					
CARTA GIGI:					
55 54 53 52 51 61 62 63 64 65					
18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28					
48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38					
85 84 83 82 81 71 72 73 74 75					

8. MONITORING AND EVALUATION

Monitoring shall be done on a scheduled and regular basis by the State Deputy Director of Health (Oral Health), Senior Dental Officers, Dental Officers and Dental Nurses. [**Appendix B1** - Gingival Index for Schoolchildren (GIS) Data Collection Report (Clinic/District Level)]

A 6-monthly report shall be submitted to the Oral Health Division, MOH. [**Appendix B2** - Gingival Index for Schoolchildren (GIS) Data Collection Report (State Level)]

Evaluation shall be done through identified indicators in the Quality Assurance Programme and the National Oral Health Plan 2011-2020. Frequency of evaluation may be undertaken annually or on a scheduled basis (to be determined by the Oral Health Division, MOH).

9. CONCLUSION

This operational manual is intended as reference for assessment of gingival status for all clinical operators in the field. The implementation of GIS will provide more comprehensive data on the gingival status of schoolchildren to enable focus of oral health messages on periodontal health. This will facilitate current and future planning of oral health services for schoolchildren.

APPENDICES

Gingival Index For Schoolchildren (GIS) Data Collection Report (Clinic/District Level)

Clinic/District
Month/Year
School : Primary/Secondary

No.	Name Of School	Enrolment	New Attendances	Number of Students with GIS Score			
				0 (MBG)	1	2	3

Source : PG 307

Prepared by
Name :
Designation :
Date :

Checked by
Name :
Designation :
Date:

Gingival Index For Schoolchildren (GIS) Data Collection Report (State Level)

State
Jan-June Year _____
Jan- Dec Year _____

Category	Number of Schools	Enrolment	New Attendances	Number of Students with GIS Score		
				0 (MBG)	1	2
Primary Schools						3
Secondary Schools						

Source : PG 307

Prepared by
Name :
Designation :
Date :

Checked by
Name :
Designation :
Date:

**PANDUAN PELAKSANAAN
BAGI
PEGAWAI PERGIGIAN DAN JURURAWAT
PERGIGIAN**

**GINGIVAL INDEX FOR
SCHOOLCHILDREN
(GIS)**



**BAHAGIAN KESIHATAN PERGIGIAN
KEMENTERIAN KESIHATAN MALAYSIA**

2013

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1. LATAR BELAKANG

Status gingiva merupakan salah satu indikator yang diguna pakai dalam Program Penjagaan Kesihatan Mulut murid sekolah. Penyampaian perkhidmatan pergigian sekolah adalah berpandukan kepada ‘*Guidelines on Oral Healthcare for Schoolchildren*’ di mana penilaian terhadap mulut bebas gingivitis menggunakan indeks 6-permukaan di 6 gigi indeks¹. Walaubagaimanapun terdapat perbezaan yang ketara berhubung status gingiva murid-murid sekolah yang diperoleh dari data kaji selidik peringkat kebangsaan^{2,3,4} dan data dari Sistem Pengurusan Maklumat Kesihatan (HIMS)^{5,6}. Sehubungan itu, satu kajian telah dijalankan pada Julai 2011 untuk melihat perbezaan status Mulut Bebas Gingivitis di kalangan murid-murid sekolah menggunakan indeks 6-permukaan (seperti yang dilaporkan melalui e-reporting) berbanding 12-permukaan bagi 6 gigi indeks.

Indeks 12-permukaan didapati lebih tepat dalam mengesan gingivitis tetapi penggunaannya didapati mengambil masa yang lebih lama jika digunapakai untuk bilangan yang ramai. Jika dibandingkan penggunaan dua indeks tersebut, perbezaan yang ketara ditemui pada gigi 31. Oleh yang demikian, kajian dijalankan menggunakan indeks 7-permukaan. Indeks 7-permukaan ini mampu mengesan 99.14% daripada kes gingivitis setanding hasil yang diperolehi menggunakan indeks 12-permukaan. Oleh itu, disimpulkan bahawa indeks 7-permukaan adalah lebih praktikal untuk digunakan bagi menilai status gingiva murid-murid sekolah. Hasil yang diperolehi menghampiri indeks 12-permukaan serta mengambil masa yang lebih singkat.

Susulan dari itu indeks 7-permukaan ini dinamakan *Gingival Index for Schoolchildren (GIS)* dan telah dibentang dan dipersetujui di Mesyuarat Jawatankuasa Dasar dan Perancangan Kesihatan Pergigian 1/2013 untuk diguna bagi menilai status gingiva murid-murid sekolah. Buku panduan ini adalah bahan rujukan untuk kegunaan semua operator di lapangan bagi menilai status gingiva murid-murid sekolah.

1 Oral Health Division, Ministry of Health Malaysia. Oral Healthcare for Schoolchildren in Malaysia, 2006

2 Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey for Schoolchildren 2007 (NOHSS 2007) - 12 year olds, 2010.

3 Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey for Schoolchildren 2007 (NOHSS 2007) - 16 year olds, 2010

4 Oral Health Division, Ministry of Health Malaysia. Preliminary Report of National Oral Health Survey of Adults 2010, 2013.

5 Health Informatics Centre Planning and Development Division, Ministry of Health Malaysia. Annual Report Health Information Management System (Oral Health Sub System), 2007.

6 Health Informatics Centre Planning and Development Division, Ministry of Health Malaysia. Annual Report Health Information Management System (Oral Health Sub System), 2010.

2. OBJEKTIF

Objektif Umum

Memastikan semua operator klinikal (Pegawai Pergigian dan Jururawat Pergigian) mempunyai pemahaman dan tafsiran yang sama dalam mengaplikasi indeks 7-permukaan (GIS) bagi menilai status gingiva murid-murid sekolah.

Objektif Khusus

- i. Untuk mencapai standardization bagi penggunaan GIS 7-permukaan di kalangan operator.
- ii. Untuk menilai status gingiva murid-murid sekolah menggunakan GIS.
- iii. Untuk merekod dan memantau data status gingiva murid-murid sekolah.

3. SKOP

Prosedur dan proses untuk menilai status gingiva seperti yang digariskan di dalam manual ini hendaklah dipatuhi oleh semua operator klinikal.

4. PELAKSANAAN

Pelaksanaan melibatkan penyeragaman dalam pemahaman, tafsiran dan aplikasi GIS. Indeks ini akan digunapakai mulai 1 Januari 2014 dalam perkhidmatan pergigian sekolah di Malaysia.

5. PROSEDUR PEMERIKSAAN

Memeriksa semua permukaan gigi indeks 16, 11, 26, 36, 31 dan 46 seperti yang dinyatakan di bawah

Buccal 16	Labial 11	Buccal 26
46 Lingual	31 Labial and Lingual (rekod skor yang lebih tinggi)	36 Lingual

- Hanya periksa gigi yang telah tumbuh sepenuhnya
Gigi dikategorikan telah tumbuh sepenuhnya apabila ia telah mencapai satah oklusi
- Jangan periksa gigi yang ditanda untuk cabutan.
- Gigi Alternatif
Jika gigi indeks telah dicabut atau belum tumbuh sepenuhnya, periksa gigi bersebelahan dari jenis yang sama.

Contoh: Jika tiada gigi 6 (molar pertama), periksa gigi sebelahnya iaitu gigi 7 (molar kedua)
Sekiranya tiada gigi 7, rekod skor yang paling tinggi di antara gigi 4 atau 5 (premolar pertama atau kedua) dan sekiranya tiada, periksa gigi D atau E (gigi susu)

Contoh: Jika 11 atau 51 tiada, periksa 21 atau 61. Jika 11/51 dan 21/61 tiada, rekod skor paling tinggi bagi gigi yang ada dalam sextant tersebut.

Periksa secara *visual* bagi melihat kehadiran kalkulus dan / atau gingivitis pada permukaan gigi indeks. Kapas boleh digunakan untuk membuang sisa makanan. Sekiranya ragu-ragu, rekod skor yang lebih rendah.

6. KRITERIA PENSKORAN

Rekod skor bagi gigi indeks tersebut di dalam kotak yang dilakar.

Bagi gigi indeks 31, rekod skor yang lebih tinggi antara permukaan labial dan lingual.

Kriteria Penskoran bagi Gigi Indeks

- 0 = Tiada gingivitis, Tiada kalkulus
- 1 = Tiada gingivitis, Ada kalkulus
- 2 = Ada gingivitis, Tiada kalkulus
- 3 = Ada gingivitis, Ada kalkulus

Buccal	Labial	Buccal
16	11	26
46 Lingual		36 Lingual
		31 Labial and Lingual (rekod skor yang lebih tinggi)

Skor GIS

Skor yang tertinggi antara semua gigi indeks akan menjadi skor GIS untuk subjek tersebut.

* Walau bagaimanapun, jika terdapat gabungan skor 1 dan 2 antara gigi indeks, maka skor GIS ialah 3

	Gigi Indeks						Skor GIS
	16	11	26	36	31	46	
Skor bagi Gigi Indeks	0	0	0	0	0	0	0
	1	0	0	1	1	1	1
	0	2	2	0	0	2	2
	0	3	3	0	0	0	3
	1	0	2	2	1	0	3 *
	0	1	2	3	3	2	3

Mulut Bebas Gingivitis (MBG)

Definisi Mulut Bebas Gingivitis, seperti digunakan sebelum ini, merujuk kepada ketiadaan gingivitis dan kalkulus.

Jika GIS Skor adalah 0, rekod 1 bagi MBG dalam PG 307.

Jika GIS Skor adalah 1, 2 atau 3, rekod 0 bagi MBG dalam PG 307.

Skor GIS	MBG dalam PG 307
0	1
1,2,3	0

7. PENGUMPULAN DATA

Rekod skor di kad LP8, seperti dibawah.

Rekod skor bagi gigi indeks (bagi gigi 31, rekod skor yang lebih tinggi antara dua permukaan)

Rekod skor GIS dan skor MBG dalam kotak yang dilakar

Tahun/Tingkatan:		Nama Pesakit:		Tarikh Pemeriksaan:	
No. Kad Pengenalan / Sijil Lahir / Lain-lain: -					
Kebersihan Mulut (Isikan Score)					
Score					
Plak					
GIS Score 0, 1, 2 atau 3 Gingivitis (G) (Tanda 0 atau 1)					
GIS ☐ MBG ☐					
DENTUR: (Tanda 0 atau 1)					
CARTA GIGI:					
55 54 53 52 51 61 62 63 64 65					
18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28					
Kanan 48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38 Kiri					
85 84 83 82 81 71 72 73 74 75					

8. PEMANTAUAN DAN PENILAIAN

Pemantauan penggunaan indeks perlu dijalankan secara berkala oleh Timbalan Pengarah Kesihatan Negeri (Pergigian), Pegawai Pergigian Daerah, Pegawai Pergigian dan Penyelia Jururawat Pergigian [**Appendix B1** - *Gingival Index for Schoolchildren (GIS) Data Collection Report (Clinic/District Level)*]

Laporan hendaklah dikemukakan kepada Bahagian Kesihatan Pergigian, KKM setiap 6 bulan menggunakan borang yang disediakan [**Appendix B2** - *Gingival Index for Schoolchildren (GIS) Data Collection Report (State Level)*]. Penilaian akan dibuat melalui petunjuk yang dikenalpasti bagi *Quality Assurance Programme* dan *National Oral Health Plan 2011-2020*. Kekerapan penilaian akan dibuat setiap tahun secara berkala (akan ditentukan oleh Bahagian Kesihatan Pergigian, KKM).

9. KESIMPULAN

Buku panduan ini adalah rujukan untuk kegunaan semua operator di lapangan bagi menilai status gingiva murid-murid sekolah. Dengan pelaksanaan GIS ini, data berkaitan status gingiva murid sekolah akan lebih komprehensif dan akan menyumbang kepada perancangan penyampaian perkhidmatan pergigian sekolah.

LAMPIRAN

Gingival Index For Schoolchildren (GIS) Data Collection Report (Clinic/District Level)

Clinic/District
Month/Year
School : Primary/Secondary

No.	Name Of School	Enrolment	New Attendances	Number of Students with GIS Score			
				0 (MIBG)	1	2	3

Source : PG 307

Prepared by
Name :
Designation :
Date :

Checked by
Name :
Designation :
Date:

Gingival Index For Schoolchildren (GIS) Data Collection Report (State Level)

State
Jan-June Year _____
Jan- Dec Year _____

Category	Number of Schools	Enrolment	New Attendances	Number of Students with GIS Score		
				0 (MBG)	1	2
Primary Schools						3
Secondary Schools						

Source : PG 307

Prepared by
Name :
Designation :
Date :

Checked by
Name :
Designation :
Date: