**Supplementary materials**

Table S1: Number of patients whose disease status did not change from their first visit to their last visit between June 1, 2005 and August 1, 2019.

|  |  |
| --- | --- |
| From “disease stage” TO “disease stage” | Number of patients |
| generalized mild periodontitis to generalized mild periodontitis | 38 |
| generalized mild gingivitis to generalized mild gingivitis | 729 |
| generalized moderate periodontitis to generalized moderate periodontitis | 725 |
| generalized moderate gingivitis to generalized moderate gingivitis | 439 |
| generalized gingivitis to generalized gingivitis | 274 |
| localized mild periodontitis to localized mild periodontitis | 215 |
| generalized mild to moderate periodontitis to generalized mild to moderate periodontitis | 140 |
| generalized severe periodontitis to generalized severe periodontitis | 90 |
| localized moderate periodontitis to localized moderate periodontitis | 84 |
| localized mild gingivitis to localized mild gingivitis | 80 |
| generalized moderate to severe periodontitis to generalized moderate to severe periodontitis | 73 |
| generalized mild to moderate gingivitis to generalized mild to moderate gingivitis | 48 |
| generalized periodontitis to generalized periodontitis | 42 |
| localized gingivitis to localized gingivitis | 39 |
| localized severe periodontitis to localized severe periodontitis | 34 |
| localized periodontitis to localized periodontitis | 30 |
| generalized severe gingivitis to generalized severe gingivitis | 29 |
| generalized mild gingivitis to generalized mild periodontitis | 27 |
| localized mild periodontitis to generalized mild periodontitis | 21 |
| localized moderate gingivitis to localized moderate gingivitis | 11 |
| localized mild to moderate periodontitis to localized mild to moderate periodontitis | 11 |
| generalized moderate to severe gingivitis to generalized moderate to severe gingivitis | 9 |
| localized severe gingivitis to localized severe gingivitis | 4 |
| localized moderate to severe periodontitis to localized moderate to severe periodontitis | 4 |
| localized mild to moderate gingivitis to localized mild to moderate gingivitis | 3 |
| localized moderate to severe gingivitis to localized moderate to severe gingivitis | 1 |
| Total | 3,919 |

Table S2: Number of patients whose disease status progressed from their first visit to the last visit between June 1, 2005 and August 1, 2019.

|  |  |
| --- | --- |
| From “disease stage” TO “disease stage” | Number of patients |
| generalized mild periodontitis to localized moderate periodontitis | 77 |
| generalized moderate periodontitis to localized severe periodontitis | 66 |
| generalized mild periodontitis to generalized moderate periodontitis | 56 |
| generalized gingivitis to localized mild periodontitis | 35 |
| generalized mild to moderate periodontitis to generalized moderate periodontitis | 26 |
| generalized mild periodontitis to localized severe periodontitis | 26 |
| generalized moderate gingivitis to localized mild periodontitis | 25 |
| localized mild periodontitis to generalized mild gingivitis | 24 |
| generalized moderate gingivitis to generalized mild periodontitis | 23 |
| generalized mild gingivitis to localized moderate periodontitis | 18 |
| generalized mild periodontitis to generalized mild to moderate periodontitis | 17 |
| generalized mild gingivitis to generalized moderate gingivitis | 15 |
| generalized moderate gingivitis to generalized moderate periodontitis | 15 |
| localized mild gingivitis to generalized mild gingivitis | 14 |
| generalized mild to moderate periodontitis to localized severe periodontitis | 14 |
| generalized gingivitis to localized moderate periodontitis | 13 |
| generalized mild to moderate periodontitis to localized moderate periodontitis | 11 |
| localized mild periodontitis to localized moderate periodontitis | 11 |
| generalized mild gingivitis to localized severe periodontitis | 10 |
| generalized moderate periodontitis to generalized severe periodontitis | 10 |
| generalized gingivitis to generalized mild periodontitis | 9 |
| generalized moderate gingivitis to localized severe periodontitis | 7 |
| generalized gingivitis to localized periodontitis | 7 |
| localized mild periodontitis to localized severe periodontitis | 6 |
| localized mild periodontitis to generalized moderate periodontitis | 6 |
| generalized mild gingivitis to generalized moderate periodontitis | 6 |
| generalized gingivitis to localized severe periodontitis | 6 |
| generalized mild gingivitis to localized moderate gingivitis | 6 |
| generalized severe gingivitis to localized mild periodontitis | 5 |
| generalized mild gingivitis to generalized mild to moderate gingivitis | 5 |
| generalized moderate to severe periodontitis to localized severe periodontitis | 5 |
| generalized mild periodontitis to localized moderate to severe periodontitis | 4 |
| localized mild gingivitis to localized mild periodontitis | 4 |
| generalized moderate gingivitis to generalized mild to moderate periodontitis | 3 |
| localized mild to moderate periodontitis to generalized mild periodontitis | 3 |
| generalized mild to moderate gingivitis to localized mild periodontitis | 3 |
| generalized moderate gingivitis to generalized mild to moderate gingivitis | 3 |
| generalized mild periodontitis to localized mild to moderate periodontitis | 3 |
| localized moderate periodontitis to generalized moderate periodontitis | 3 |
| localized mild gingivitis to generalized moderate gingivitis | 3 |
| localized mild to moderate periodontitis to generalized moderate periodontitis | 2 |
| generalized mild periodontitis to generalized severe periodontitis | 2 |
| localized moderate periodontitis to localized severe periodontitis | 2 |
| generalized moderate to severe gingivitis to generalized moderate periodontitis | 2 |
| localized mild periodontitis to localized moderate to severe periodontitis | 2 |
| localized mild to moderate gingivitis to localized mild periodontitis | 2 |
| generalized moderate gingivitis to localized severe gingivitis | 2 |
| generalized mild to moderate gingivitis to generalized mild periodontitis | 2 |
| generalized mild to moderate periodontitis to generalized severe periodontitis | 2 |
| generalized moderate periodontitis to generalized moderate to severe periodontitis | 2 |
| generalized moderate periodontitis to localized moderate to severe periodontitis | 2 |
| generalized mild to moderate gingivitis to localized moderate periodontitis | 2 |
| generalized moderate to severe periodontitis to generalized severe periodontitis | 2 |
| localized mild to moderate gingivitis to generalized mild to moderate gingivitis | 2 |
| generalized severe gingivitis to generalized mild periodontitis | 2 |
| generalized mild to moderate gingivitis to generalized moderate gingivitis | 2 |
| localized mild periodontitis to localized mild to moderate periodontitis | 2 |
| generalized mild gingivitis to generalized mild to moderate periodontitis | 2 |
| localized gingivitis to generalized gingivitis | 2 |
| generalized mild to moderate gingivitis to localized mild to moderate periodontitis | 2 |
| localized gingivitis to localized periodontitis | 1 |
| localized moderate gingivitis to generalized moderate gingivitis | 1 |
| localized mild gingivitis to localized moderate gingivitis | 1 |
| generalized severe gingivitis to localized severe periodontitis | 1 |
| generalized moderate to severe gingivitis to localized mild to moderate periodontitis | 1 |
| localized moderate gingivitis to generalized moderate periodontitis | 1 |
| localized moderate gingivitis to localized moderate periodontitis | 1 |
| generalized mild periodontitis to generalized moderate to severe periodontitis | 1 |
| generalized mild gingivitis to generalized severe gingivitis | 1 |
| localized mild gingivitis to generalized moderate to severe gingivitis | 1 |
| localized mild periodontitis to generalized severe periodontitis | 1 |
| generalized moderate gingivitis to generalized severe gingivitis | 1 |
| generalized mild gingivitis to localized mild to moderate gingivitis | 1 |
| localized severe periodontitis to generalized severe periodontitis | 1 |
| generalized mild to moderate gingivitis to generalized moderate periodontitis | 1 |
| generalized severe gingivitis to generalized mild to moderate periodontitis | 1 |
| generalized moderate to severe gingivitis to localized mild periodontitis | 1 |
| localized mild gingivitis to generalized moderate periodontitis | 1 |
| generalized mild to moderate periodontitis to generalized moderate to severe periodontitis | 1 |
| localized severe gingivitis to localized mild periodontitis | 1 |
| localized mild periodontitis to generalized mild to moderate periodontitis | 1 |
| localized moderate to severe gingivitis to generalized moderate periodontitis | 1 |
| localized moderate to severe gingivitis to generalized moderate to severe gingivitis | 1 |
| generalized severe gingivitis to localized moderate periodontitis | 1 |
| generalized moderate gingivitis to generalized moderate to severe periodontitis | 1 |
| generalized mild to moderate gingivitis to generalized moderate to severe gingivitis | 1 |
| Total | 669 |

Table S3: Number of patients whose disease status improved from their first visit to the last visit between June 1, 2005 and August 1, 2019.

|  |  |
| --- | --- |
| From “disease stage” TO “disease stage” | Number of patients |
| generalized moderate periodontitis to generalized mild periodontitis | 76 |
| generalized mild gingivitis to localized mild periodontitis | 50 |
| generalized mild periodontitis to generalized mild gingivitis | 32 |
| generalized mild periodontitis to localized mild periodontitis | 30 |
| generalized mild gingivitis to localized mild gingivitis | 20 |
| generalized severe periodontitis to generalized moderate periodontitis | 19 |
| generalized moderate periodontitis to localized moderate periodontitis | 19 |
| generalized moderate gingivitis to localized moderate periodontitis | 18 |
| generalized moderate to severe periodontitis to generalized moderate periodontitis | 18 |
| generalized moderate gingivitis to generalized mild gingivitis | 17 |
| generalized mild periodontitis to generalized moderate gingivitis | 15 |
| generalized moderate periodontitis to generalized mild to moderate periodontitis | 12 |
| generalized moderate periodontitis to localized mild periodontitis | 12 |
| localized moderate periodontitis to generalized moderate gingivitis | 11 |
| generalized moderate periodontitis to generalized moderate gingivitis | 10 |
| generalized moderate gingivitis to localized mild gingivitis | 10 |
| generalized moderate periodontitis to generalized mild gingivitis | 10 |
| generalized severe periodontitis to localized severe periodontitis | 9 |
| localized moderate periodontitis to generalized mild periodontitis | 8 |
| localized No disease to localized No disease | 7 |
| localized mild periodontitis to localized mild gingivitis | 7 |
| generalized mild periodontitis to localized mild gingivitis | 7 |
| generalized mild periodontitis to localized moderate gingivitis | 6 |
| generalized moderate to severe periodontitis to generalized mild periodontitis | 6 |
| generalized gingivitis to localized mild gingivitis | 5 |
| localized moderate periodontitis to localized mild periodontitis | 5 |
| generalized moderate gingivitis to localized moderate gingivitis | 4 |
| generalized severe gingivitis to generalized mild gingivitis | 4 |
| generalized moderate to severe periodontitis to localized moderate to severe periodontitis | 3 |
| generalized severe periodontitis to generalized mild periodontitis | 3 |
| localized mild to moderate periodontitis to generalized mild to moderate gingivitis | 3 |
| generalized mild to moderate periodontitis to generalized mild to moderate gingivitis | 3 |
| generalized moderate periodontitis to generalized severe gingivitis | 3 |
| localized mild to moderate periodontitis to localized mild periodontitis | 3 |
| localized severe periodontitis to generalized moderate periodontitis | 3 |
| localized severe periodontitis to localized mild periodontitis | 3 |
| generalized mild to moderate gingivitis to generalized mild gingivitis | 3 |
| generalized severe periodontitis to generalized mild to moderate periodontitis | 2 |
| generalized mild periodontitis to generalized severe gingivitis | 2 |
| generalized mild to moderate periodontitis to localized mild periodontitis | 2 |
| generalized mild to moderate periodontitis to generalized moderate gingivitis | 2 |
| generalized moderate to severe periodontitis to generalized mild to moderate periodontitis | 2 |
| generalized mild to moderate periodontitis to generalized mild gingivitis | 2 |
| localized moderate to severe periodontitis to generalized moderate periodontitis | 2 |
| localized moderate to severe periodontitis to generalized mild periodontitis | 2 |
| generalized gingivitis to localized gingivitis | 2 |
| generalized mild to moderate periodontitis to generalized severe gingivitis | 2 |
| localized severe periodontitis to generalized mild periodontitis | 2 |
| localized moderate periodontitis to generalized mild gingivitis | 2 |
| localized moderate to severe periodontitis to generalized moderate gingivitis | 2 |
| generalized severe periodontitis to generalized moderate to severe periodontitis | 2 |
| localized moderate to severe periodontitis to generalized moderate to severe gingivitis | 1 |
| generalized moderate periodontitis to localized mild gingivitis | 1 |
| generalized moderate to severe periodontitis to localized moderate periodontitis | 1 |
| localized moderate to severe gingivitis to localized moderate gingivitis | 1 |
| generalized moderate periodontitis to localized moderate gingivitis | 1 |
| generalized moderate periodontitis to generalized mild to moderate gingivitis | 1 |
| localized mild periodontitis to localized severe gingivitis | 1 |
| localized moderate to severe periodontitis to generalized mild No disease | 1 |
| generalized severe periodontitis to generalized severe gingivitis | 1 |
| localized severe periodontitis to generalized mild to moderate gingivitis | 1 |
| localized moderate periodontitis to localized severe gingivitis | 1 |
| generalized periodontitis to generalized gingivitis | 1 |
| generalized mild periodontitis to localized severe gingivitis | 1 |
| localized mild periodontitis to localized moderate gingivitis | 1 |
| generalized mild to moderate periodontitis to localized mild to moderate periodontitis | 1 |
| localized moderate periodontitis to generalized severe gingivitis | 1 |
| generalized moderate to severe periodontitis to localized mild periodontitis | 1 |
| generalized severe periodontitis to localized mild to moderate periodontitis | 1 |
| localized moderate periodontitis to generalized mild to moderate gingivitis | 1 |
| generalized severe periodontitis to localized mild periodontitis | 1 |
| localized severe periodontitis to localized mild to moderate periodontitis | 1 |
| localized moderate to severe periodontitis to generalized severe gingivitis | 1 |
| generalized severe periodontitis to generalized moderate gingivitis | 1 |
| generalized moderate to severe gingivitis to generalized mild gingivitis | 1 |
| localized moderate periodontitis to localized moderate gingivitis | 1 |
| generalized severe gingivitis to localized mild gingivitis | 1 |
| generalized severe gingivitis to generalized mild to moderate gingivitis | 1 |
| localized periodontitis to generalized gingivitis | 1 |
| localized moderate gingivitis to generalized mild gingivitis | 1 |
| generalized gingivitis to localized mild to moderate gingivitis | 1 |
| localized gingivitis to localized severe gingivitis | 1 |
| localized moderate to severe periodontitis to generalized mild gingivitis | 1 |
| localized severe periodontitis to generalized severe gingivitis | 1 |
| localized mild periodontitis to generalized severe gingivitis | 1 |
| generalized moderate to severe periodontitis to generalized moderate gingivitis | 1 |
| Total | 537 |

Table S4: Unknown periodontal disease change categories for which either disease type or severity information was not available from clinician-recorded diagnoses.

|  |  |
| --- | --- |
| FROM disease type TO disease type | Number of patients |
| generalized mild No disease to generalized mild No disease | 46 |
| generalized moderate No disease to generalized moderate No disease | 40 |
| generalized gingivitis to generalized mild gingivitis | 30 |
| generalized mild to moderate periodontitis to generalized mild periodontitis | 22 |
| generalized moderate periodontitis to generalized moderate No disease | 15 |
| generalized No disease to generalized No disease | 15 |
| generalized mild gingivitis to localized mild No disease | 9 |
| generalized periodontitis to generalized moderate periodontitis | 8 |
| localized mild periodontitis to generalized moderate gingivitis | 8 |
| generalized mild periodontitis to localized moderate No disease | 8 |
| generalized gingivitis to generalized mild to moderate gingivitis | 7 |
| generalized moderate periodontitis to localized severe No disease | 7 |
| generalized mild to moderate periodontitis to generalized mild No disease | 6 |
| generalized mild to moderate No disease to generalized mild to moderate No disease | 6 |
| generalized gingivitis to generalized moderate gingivitis | 6 |
| generalized mild periodontitis to localized severe No disease | 5 |
| generalized mild periodontitis to generalized moderate No disease | 5 |
| generalized mild No disease to generalized mild periodontitis | 5 |
| localized mild No disease to localized mild No disease | 5 |
| localized moderate No disease to localized moderate No disease | 5 |
| generalized gingivitis to localized No disease | 4 |
| generalized mild periodontitis to generalized mild No disease | 4 |
| generalized moderate gingivitis to localized moderate No disease | 4 |
| generalized moderate periodontitis to localized moderate No disease | 4 |
| generalized gingivitis to generalized severe gingivitis | 3 |
| generalized gingivitis to generalized moderate periodontitis | 3 |
| generalized mild gingivitis to generalized moderate No disease | 3 |
| generalized moderate gingivitis to generalized moderate No disease | 3 |
| generalized mild periodontitis to localized mild No disease | 3 |
| generalized moderate No disease to generalized moderate periodontitis | 3 |
| generalized periodontitis to localized moderate periodontitis | 3 |
| localized gingivitis to generalized mild periodontitis | 3 |
| generalized moderate No disease to localized severe periodontitis | 3 |
| generalized mild No disease to generalized moderate periodontitis | 3 |
| localized gingivitis to generalized mild gingivitis | 3 |
| generalized moderate periodontitis to generalized mild No disease | 3 |
| generalized periodontitis to generalized mild periodontitis | 3 |
| generalized mild gingivitis to localized moderate No disease | 3 |
| generalized gingivitis to localized mild No disease | 3 |
| generalized periodontitis to localized severe periodontitis | 3 |
| generalized periodontitis to localized mild periodontitis | 3 |
| generalized mild No disease to generalized mild gingivitis | 3 |
| localized mild periodontitis to localized mild No disease | 2 |
| localized mild gingivitis to generalized mild No disease | 2 |
| localized gingivitis to generalized moderate gingivitis | 2 |
| localized severe periodontitis to localized severe No disease | 2 |
| generalized mild to moderate periodontitis to generalized mild to moderate No disease | 2 |
| generalized mild gingivitis to generalized mild No disease | 2 |
| generalized moderate periodontitis to localized mild No disease | 2 |
| generalized moderate No disease to generalized mild periodontitis | 2 |
| localized moderate periodontitis to generalized mild No disease | 2 |
| generalized periodontitis to generalized severe periodontitis | 2 |
| localized mild periodontitis to generalized mild No disease | 2 |
| generalized mild to moderate periodontitis to generalized moderate No disease | 2 |
| localized mild No disease to generalized mild gingivitis | 2 |
| generalized moderate to severe periodontitis to generalized moderate No disease | 2 |
| localized mild gingivitis to localized mild No disease | 2 |
| localized periodontitis to generalized moderate periodontitis | 2 |
| generalized mild to moderate gingivitis to generalized mild to moderate No disease | 2 |
| generalized No disease to generalized mild to moderate periodontitis | 2 |
| generalized moderate gingivitis to localized mild No disease | 2 |
| generalized No disease to generalized mild gingivitis | 2 |
| localized periodontitis to localized mild periodontitis | 2 |
| generalized mild No disease to localized moderate periodontitis | 2 |
| generalized gingivitis to localized moderate No disease | 1 |
| generalized mild to moderate No disease to localized mild to moderate periodontitis | 1 |
| generalized moderate to severe periodontitis to generalized mild gingivitis | 1 |
| generalized mild No disease to localized moderate gingivitis | 1 |
| localized No disease to generalized mild periodontitis | 1 |
| generalized moderate No disease to generalized severe periodontitis | 1 |
| localized moderate gingivitis to localized severe No disease | 1 |
| localized moderate No disease to localized moderate periodontitis | 1 |
| generalized periodontitis to localized No disease | 1 |
| generalized moderate No disease to localized severe No disease | 1 |
| localized mild to moderate periodontitis to localized severe No disease | 1 |
| generalized severe periodontitis to localized moderate to severe No disease | 1 |
| localized moderate periodontitis to localized moderate No disease | 1 |
| generalized mild No disease to localized severe periodontitis | 1 |
| generalized periodontitis to localized moderate No disease | 1 |
| localized periodontitis to localized severe periodontitis | 1 |
| generalized No disease to generalized mild periodontitis | 1 |
| generalized moderate periodontitis to generalized severe No disease | 1 |
| generalized mild No disease to generalized moderate gingivitis | 1 |
| generalized mild gingivitis to localized severe No disease | 1 |
| localized No disease to generalized gingivitis | 1 |
| localized moderate No disease to localized severe periodontitis | 1 |
| generalized moderate No disease to generalized mild gingivitis | 1 |
| generalized No disease to localized mild to moderate periodontitis | 1 |
| generalized periodontitis to generalized mild gingivitis | 1 |
| generalized periodontitis to generalized severe No disease | 1 |
| generalized severe No disease to generalized moderate No disease | 1 |
| generalized gingivitis to generalized No disease | 1 |
| generalized moderate periodontitis to generalized mild to moderate No disease | 1 |
| generalized moderate to severe periodontitis to generalized mild No disease | 1 |
| generalized moderate No disease to localized moderate gingivitis | 1 |
| localized mild periodontitis to localized severe No disease | 1 |
| generalized periodontitis to localized moderate to severe periodontitis | 1 |
| localized mild periodontitis to generalized mild to moderate No disease | 1 |
| generalized moderate to severe periodontitis to localized moderate to severe No disease | 1 |
| generalized mild No disease to localized moderate No disease | 1 |
| generalized periodontitis to localized severe No disease | 1 |
| generalized mild to moderate gingivitis to generalized mild No disease | 1 |
| generalized moderate to severe periodontitis to localized moderate No disease | 1 |
| generalized mild to moderate gingivitis to localized mild No disease | 1 |
| generalized severe No disease to generalized mild periodontitis | 1 |
| localized No disease to generalized mild No disease | 1 |
| localized gingivitis to localized mild periodontitis | 1 |
| localized gingivitis to localized No disease | 1 |
| localized gingivitis to localized moderate periodontitis | 1 |
| generalized gingivitis to generalized mild to moderate periodontitis | 1 |
| generalized moderate to severe No disease to generalized moderate to severe No disease | 1 |
| generalized mild gingivitis to localized mild to moderate No disease | 1 |
| generalized severe periodontitis to generalized moderate No disease | 1 |
| generalized periodontitis to generalized mild to moderate periodontitis | 1 |
| localized periodontitis to generalized mild gingivitis | 1 |
| localized periodontitis to generalized moderate gingivitis | 1 |
| localized gingivitis to localized severe periodontitis | 1 |
| generalized severe No disease to generalized severe No disease | 1 |
| localized periodontitis to generalized moderate No disease | 1 |
| generalized mild periodontitis to localized moderate to severe No disease | 1 |
| generalized gingivitis to localized moderate gingivitis | 1 |
| generalized mild No disease to localized mild periodontitis | 1 |
| generalized moderate gingivitis to generalized mild No disease | 1 |
| generalized No disease to localized severe periodontitis | 1 |
| localized moderate to severe periodontitis to localized severe No disease | 1 |
| generalized moderate to severe No disease to generalized severe No disease | 1 |
| localized mild periodontitis to localized moderate No disease | 1 |
| generalized moderate to severe No disease to generalized moderate periodontitis | 1 |
| localized No disease to localized periodontitis | 1 |
| Total | 437 |