

Authentic Assessment Symposium – transformation of learning in higher education



Faculty of Dentistry
The University of Hong Kong



Authentic Assessments -

- Clinical care – In-the-moment - whole
- Portfolio – Reflective Reports - whole
- OSCE – In-the-moment or delayed - part



Authentic Assessments -

- Clinical care – “Key skills”
- Portfolio – “Patient Care Synopsis”, “ICE” and “Dental practice visits”

No.	Key Skills	Time	Area
1.1	Placement of rubber dam	BDS I Modules 3-4	Operative Dentistry
2.1	History taking, examination, caries and simple periodontal diagnosis and preventive approaches	BDS II Modules 3-4	Operative Dentistry
2.2	Taking bitewing radiographs, periapical radiographs for an upper central incisor and an upper or lower molar (or premolar)	BDS II Modules 3-4	Operative Dentistry
2.3	Oral hygiene assessment and appropriate oral hygiene instruction	BDS II Clinical Skills II	Periodontology
3.1	Moderate operative procedure	BDS III Module 2	Family Dentistry
3.2	Scaling and root surface instrumentation	BDS III Modules 2-4	Periodontology
3.3	Making impressions and facebow record for the production of articulated study casts for a patient with missing teeth	BDS III Modules 3-4	Oral Rehabilitation
3.4	Tooth extraction	BDS III Clinical Skills I	Oral and Maxillofacial Surgery
4.1	Tooth preparation for removable partial dentures	BDS IV Modules 1-4	Oral Rehabilitation
4.2	Full veneer crown preparation	BDS IV Module 2	Family Dentistry
4.3	Evaluation of periodontal treatment outcome and re-evaluation of periodontal treatment plan	BDS IV Modules 2-4	Periodontology
4.4	Pulpotomy or pulpectomy for a primary molar tooth	BDS IV Modules 3-4	Paediatric Dentistry
5.1	Tooth preparation for a bridge	BDS V Modules 1-4	Oral Rehabilitation
5.2	Minor oral surgery consultation	BDS V Module 2	Oral and Maxillofacial Surgery

“Key Skills” –

From 1st-6th year
1-4 skills per year
1-3 skills per discipline

Challenges with summative assessments...

- High stakes and stressful
- Black box
- Uncertainty on scope of assessment
- What is a pass?

How do we address these?

- Transparency – Key skills document
- Assessment rubric for each key skill (criteria and standards)
- Videoed Key skills on LMS for insights

RELEVANT YEAR LEARNING OUTCOMES: By the end of Year Three, the learner should be able to:

- Explain the indications, assessment, planning, maintenance, and biomechanical principles involved in design, construction, and function of removable partial dentures.

CASE SELECTION

Define case selection criteria and patient preparation

A patient requiring the provision of removable partial denture(s) with one or more bounded or free-end saddles, and the preparation of two or more *de novo* rest seats to be selected by the student.

Prior to the evaluation session, all dental disease should have been controlled and any residual periodontal issues should be receiving appropriate maintenance therapy. The following should have been completed: denture design approval, mounting and surveying of study casts, trial tooth preparations on a duplicate cast, and aesthetic wax-up try-in (if indicated).

PROCEDURE

Scope of performance

Student is required to:

- explain the rationale for the denture design and tooth preparation plan
- describe the tooth preparation procedures proposed
- produce a duplicate cast on which the trial preparations have been completed
- carry out the tooth preparation which may include:
 - rest seats
 - guide planes, altering of survey lines, occlusal reduction or embrasure widening
- give a critical assessment of the performance outcomes

ASSESSMENT

Define what can be assessed

The student is assessed on aspects of infection control, patient management, operating posture, and the clinical procedure.

The student presents the completed work to the assessor and is invited to give a critical appraisal of their work.

The key skills performance will be graded according to the defined criteria.

Key skill proforma-

1. Mapping
2. Patient preparation
3. The performance
4. Feedback



Key Skills document -

1. Mapping

Key Skill 4.1 Tooth preparation for removable partial dentures

AREA: Oral Rehabilitation

YEAR/ MODULE: BDS IV Modules 1-4

Mapping to graduate competencies

RELEVANT GRADUATE COMPETENCES:

Domain 2: Ethics & Jurisprudence

Major competence: Ethical Practice

2.3 Sufficient information provided in order to gain informed consent for decisions regarding oral health care delivery

Domain 3: Communication

Major competence: Professional Communication

3.1 Empathy shown with patient

Domain 4: Knowledge Base

Major competence: Application of basic biological, biomedical, social and behavioral, and clinical sciences

4.2 Scientific basis of all aspects of dentistry, dental biomaterials, and other materials used in dentistry

Domain 6: Treatment Planning

6.1 Comprehensive treatment plan established to promote oral health and to prevent and manage oral diseases and oral conditions

6.2 Obtaining consent for all treatment planned

Domain 7: Delivery of Oral Health Care

7.5 Selecting and using materials appropriately in the delivery of oral health care

7.14 Replacing missing teeth and supporting tissue where appropriate, by means of removable prostheses

Key Skills rubric -

2. Patient preparation



STANDARDS DESCRIPTOR

	Graduate Competences	Grade		
	Domains and competences	Yes: Proceed	No: Fail – Do not proceed	N/A
Patient Preparation	Domain 1: Professionalism 1.7 Working effectively with team to maintain the highest possible standards of infection control, and in the control of all hazards associated with oral health care delivery, including the appropriate clinical use of dental biomaterials Domain 2: Ethics & Jurisprudence <i>Major competence: Ethical Practice</i> 2. 3 Sufficient information provided in order to gain informed consent for decisions regarding oral health care delivery Domain 3: Communication <i>Major competence: Professional Communication</i> 3.1 Empathy shown with patient			
	Domain 6: Treatment Planning 6.1 Comprehensive treatment plan established to promote oral health and to prevent and manage oral diseases and oral conditions 6.2 Obtaining consent for all treatment planned	Case assessment: Oral health is satisfactory for receiving prosthodontic treatment. Preventive, periodontal, and/or restorative treatment is complete and appropriate. The denture design is approved, and casts have been correctly mounted and surveyed. Trial tooth preparations have been performed on a duplicate cast. Aesthetic wax-up/try-in (if indicated) has been performed.	Case assessment: Oral health is not satisfactory for receiving prosthodontic treatment. Preventive, periodontal, and/or restorative treatment is not complete or is inappropriate. Denture design has not been approved, and/or casts have not been surveyed and correctly mounted. Trial tooth preparations have not been performed on a duplicate cast. Aesthetic wax-up (if necessary) has not been done.	

Key Skills rubric -


3. The performance

Performance	Domain 7: Delivery of Oral Health Care			
	7.14 Replacing missing teeth and supporting tissue where appropriate, by means of removable prostheses			
	Criteria	Concerns	Safe	Proficient
	Supporting knowledge	Insufficient knowledge of the key elements of principles, practice, and materials relevant to the key skills performance	Sufficient knowledge of the key elements of principles, practice, and materials relevant to the key skills performance	Accurate, detailed and elaborated knowledge of principles, practice, and materials relevant to the key skills performance
	Case presentation: - justification and rationale for denture design - appraisal of trial tooth preparations	Inadequate or inaccurate justification for the proposed partial denture design and/or tooth preparation plan	Accurate justification for the critical features of the proposed partial denture design and tooth preparation plan	Accurate and detailed justification for the proposed partial denture design and tooth preparation plan, as well as recognize and propose alternate satisfactory designs
	Tooth preparation procedure: - rest seat and guiding plane preparations	Inappropriate infection control measures of the: procedure, impression, patient and/or operator Procedure performed with undue patient discomfort or trauma to neighboring tissues Tooth preparations are over- or under-prepared and/or with incorrect features	Appropriate infection control of the: procedure, impression, patient and/or operator Procedure performed with empathy and minimal patient discomfort and trauma to neighboring tissues Tooth preparations are acceptably prepared	Tooth preparations are neat, smooth, and well-finished as planned
	Outcome evaluation: - appraisal of tooth preparations	Inaccurate or inadequate evaluation of key features of the tooth preparations	Accurate evaluation of key features of the tooth preparations	Detailed, and accurate evaluation of the features of the tooth preparations

*Concerns: Below expectations; Safe: Meets expectation; Proficient: Above expectations

Key Skills document -

5. Feedback

 **Feedback**

The student has achieved the key skill. ☐ Yes ☐ No

Signature: _____
Name: _____

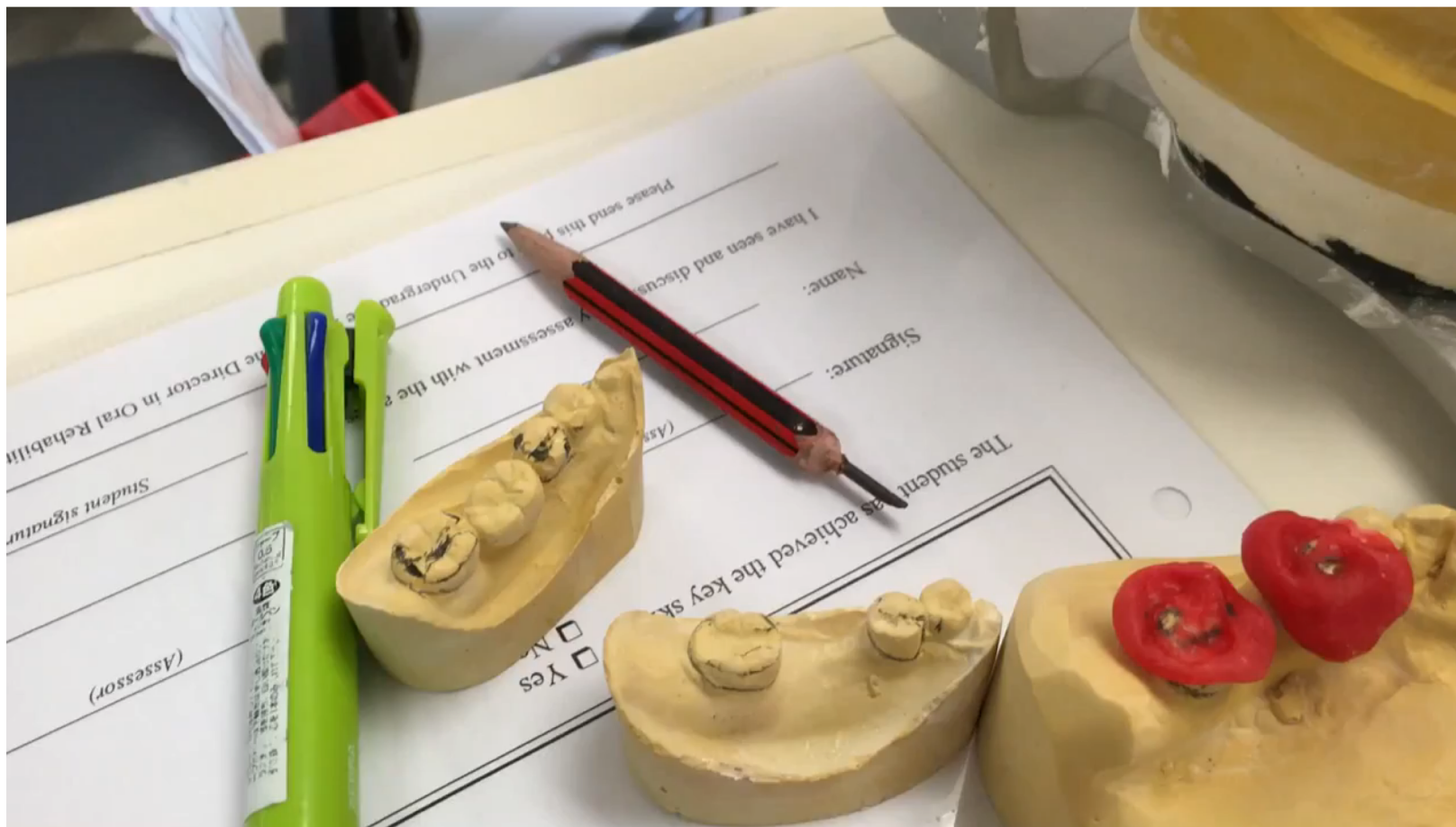
_____ (Assessor) _____ (Assessor)

I have seen and discussed my assessment with the assessor(s) _____
Student signature

Video exemplars of Key Skills performances



Video exemplars of Key Skills performances



Video exemplars of Key Skills performances



How do these videos help?

- "you will know what to expect, how to answer"
- "more confident" and "less stress"
- "how to analyze" and prepare for case selection, presentation and self evaluation
- "watch multiple times to make sure I don't miss anything"

Final year “Portfolio” oral exam –

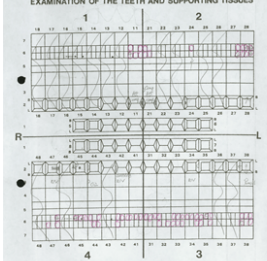
1. “Patient care synopsis” – Treated clinical cases (BDS 4-6)
2. Capstone or “International Clinical Experience”
3. Dental practice visit reports


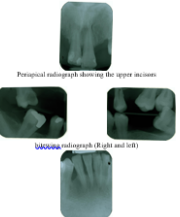
Clinical portfolio – “patient care synopsis”

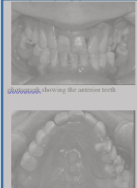
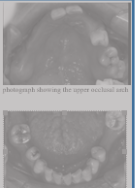


Treated patient report –

- Defined domains and word limits
- Case presentation and treatment outcomes
- Clinical reflection
- Personal reflection
- Evidence based

PATIENT CARE SYNOPSIS	
Patient initials: _____ DOB: _____ PPH No: <u>2</u>	
Student name: _____ Date of allocation: <u>18.12.21</u>	
Case No: _____ Date of last review: <u>20.1.22</u>	
Relevant Clinical Findings:	
Chief Complaint/Concern <u>Patient requested for replacement of missing teeth</u>	
History of Presenting Complaint/Concern <u>The missing teeth were extracted before due to severe caries several years ago. There were functional and aesthetic concerns due to the loss of teeth. The patient had no experience of wearing of any denture. There was no pain or any signs and symptoms related to the present denture.</u>	
Previous Dental History <u>He was an irregular attendee to dental clinic.</u> <u>He brushed his teeth twice daily but without flossing or mouth-rinsing habit.</u>	
Relevant Medical History <u>He said drugs for antacid and vitamin B12 used to prevent gastric. He said he had no smoking experience in his childhood to 20 and no medication is needed now.</u>	
Family and Social History <u>He worked as a salesman. He smoked regularly and drank alcohol irregularly.</u>	
Patient care synopsis	

Clinical Charting:	
1 THE PRINCE PHILIP DENTAL HOSPITAL <u>16/03/22</u>	
Name of Patient: <u>Cheng, John, George</u> SEX: <u>M</u> AGE: <u>35</u> Y: <u>9</u> M: <u>01</u>	
EXAMINATION OF THE TEETH AND SUPPORTING TISSUES	
	
Box 1: Primary Teeth, Present Condition Box 2: Permanent Teeth, Present Condition Box 3: Restorative Treatment Plan Box 4: For Restorative Treatment Box 5: Prosthetic Box 6: Periodontal Disease Greater Than Tooth Box 7: Extensive From Periodontal Disease (Marked by X) Box 8: Caries, Pulpal Involvement	
Patient care synopsis	

Clinical Photographs and Radiographs	
Radiographs	
1) intra oral: panoramic tomograph	
	
2) extra: cephalometric radiograph (left and right)	
	
Patient care synopsis	

Not sensitive to disclosure	
	
	
	
	
Patient care synopsis	

Diagnosis and Summary of Key Clinical Findings	
Diagnosis: <u>periodontitis, caries, missing teeth causing functional and aesthetic problem.</u> <u>The patient presented with 1) Generalized periodontitis, 2) anterior and rear caries denture as shown, 3) missing teeth as shown.</u>	
Treatment Goals: 1) <u>control periodontitis</u> 2) <u>manage caries lesions using preventive therapies</u> 3) <u>replace permanent anterior denture</u> 4) <u>replace missing teeth</u> 5) <u>manage caries lesions</u>	
Treatment Planned: 1) <u>ORC 2 visit</u> 2) <u>check oral hygiene and provide fluoride mouthwash</u> 3) <u>restore teeth 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000</u>	
Current status of treatment: <u>Restoration completed:</u> <u>ORC 2 and 3 done and oral hygiene and dental care on teeth 116, 117 and 118.</u> <u>Upper arch removable partial denture delivery</u> <u>restoration will be performed</u> <u>monitor the periodontal status</u>	

Factors Affecting Treatment:	
1. What factors influenced the planning of the treatment to be delivered? <u>The patient had only 2 teeth remaining in the upper jaw making functional and aesthetic problem. As a result, we considered providing him with an upper removable partial denture to improve the management of his periodontal disease. Patient's smoking habit affected his periodontal condition, so when he started to smoke this habit, his periodontal condition improved more rapidly in response to the treatment we provided to him. However, as the patient was still at risk of periodontal disease because of the poor alignment of teeth in lower arch, finally we made up the final treatment plan not to replace his lower missing teeth by providing partial denture to reduce his risk of recurrent periodontal disease. This plan had been considered with no functional and aesthetic problem without a lower removable denture.</u>	
2. Were there any particular difficulties/obstacles that occurred during the delivery of treatment which necessitated a change in the treatment plan or its sequence? <u>Initially, we want to manage his periodontal condition before delivery of the partial denture. However, the patient has functional and aesthetic problem without an upper removable partial denture. As in between the management of periodontal disease, we provide him the denture for restore him his functional and his denture in one visit. However, his periodontal condition will recover. The patient's smoking habit also affected the management of periodontal disease. Thus we suggested him to cease the habit. After this, his periodontal disease is much improved. There were no more cases on his teeth, as a result, it was quite difficult in changing the shade for his upper denture teeth. Finally, in cooperation with the technician, the shade is chosen together by both of us in the clinic to match the existing denture.</u>	
Clinical Skills Learning 3. From your experience of treating this patient, what new skills and self-assessment skills did you learn or improve upon? <u>After treating the patient, my knowledge in managing periodontal disease is improved. I observed that smoking really worsens the periodontal disease. Once the habit is ceased, the periodontal condition is much improved in response to the management of oral hygiene habit and periodontal treatment done. I also learnt that motivation of the patient would be improved if we response to patient's complaint. As the patient had functional and aesthetic problem with his missing teeth in the upper arch, we provided him with an upper removable partial denture to improve the management of his periodontal disease. Afterwards, he was much happier on our treatment and his oral hygiene is improved as he often as well.</u>	

Personal Reflection:	
4. From your experience of treating this patient, what communication and patient management skills did you learn or improve upon? <u>From the experience of treating this patient, I found that motivation of the patient would be improved if we response to patient's complaint. As the patient had functional and aesthetic problem with his missing teeth in the upper arch, we provided him with an upper removable partial denture to improve the management of his periodontal disease. Afterwards, he was much happier on our treatment and his oral hygiene is improved as he often as well.</u>	
5. With your knowledge, skills and experience that you now have acquired after completing the treatment for this patient, how might you have treated this patient differently? <u>As the patient had smoking habit, this modified his periodontal condition, which is already not well controlled because of his poor hygiene. After the ORC 2 and 3, and 4, provided to him, the periodontal condition was not much improved. However, after ceasing his smoking habit, his periodontal condition had obviously improved. As if I had to treat the patient again, I would suggest him to cease his smoking habit as soon as possible. However, if he had ceased his smoking habit earlier, I think hygiene may be a possible choice of treatment to replace his missing teeth as well.</u>	
6. From your experience of having managed this patient, what would be your assessment of the outlook for this patient's long-term oral health? <u>In long-term, if he could keep his oral hygiene as well as the present, he should be able to keep his present oral health. However, he is still at risk of periodontal disease, as if he is not able to clean well, the periodontal disease would be recurrent and further loss of teeth in upper arch might make him in need of a complete denture. Also, his upper removable partial denture may need to be replaced after a period of time when bone resorption might also place in the upper arch as well removed.</u>	

ICE

- Introduction to Country/location
- Introduction to local dental organization /services
- Observational report of experience and comparison
- Experience outside dentistry
- Personal reflection



Figure 21 – The Maasai Village

Dental Practice Visit.

Dental Practice Visit Report

Dr. Paul Lau's Clinic

1. Practice type and patient pool

Dr. Paul Lau is an Orthodontic specialist and most of his patients are referral by other dentists and private base.

2. Staffing and Management

There are 2 other dentists in Dr. Lau's clinic, who are general practitioners. There are also 5 dental assistants and 2 of them are responsible for the reception and patient appointment.

Upon discussion with Dr. Lau, he told us that there are many aspects that he has to manage for a private clinic. First is the general set-up of the clinic, all the instrument, machines, clinic design have to be up to standard. Then as the person in charge of the clinic, he also has to work with many other professions such as lawyer, accountant, architect, for the normal running of the clinic.

3. Clinical matters

Dr. Lau showed us the computer system for patient management in his clinic. It is a very comprehensive system which stored all his patient information for example, clinical photos, radiographs, day sheets etc.

4. Reflection

After visiting Dr. Lau's clinic, I realize that there are so much to learn before opening a private dental clinic. A private clinic is like a company, as the person in charge, I must learn how to manage all the things he told us. This gives me a clear concept for what I should do if I am going to have my own private clinic in the future.



- Type of practice
- Staffing and management
- Clinical matters
- Reflection

Thank you!

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Faculty of Dentistry

The University of Hong Kong