D3 PICO

- **Clinical Question:**
  - In maxillary edentulous patients, how do conventional complete dentures compared to implant supported overdentures influence quality of life?

PICO Format

P: Patients with edentulous maxilla

I: Implant supported maxillary denture

C: Conventional maxillary denture

O: Quality of Life

PICO Formatted Question

- Do maxillary implant supported overdentures for maxillary edentulous patients result in an increased quality of life when compared to conventional maxillary dentures?

Clinical Bottom Line

- Even though dentures restore many functions to an edentulous patients, it will never be restored to that of a natural dentition.
- Want to provide the option that provides the patient with the greatest quality of life and patient satisfaction while restoring as much function as possible

Search Background

- **Date(s) of Search:** 11/10/19
- **Database(s) Used:** PubMed
- **Search Strategy/Keywords:**
  - Narrowed the search by selecting Systematic Reviews and Meta-analysis. Later broadened search to find the 3rd article
  - Used MeSH Terms

Search Background

- **MESH terms used:**
  - Dental prosthesis, implant-supported
  - Quality of life
  - Denture
  - Patient satisfaction
  - Denture, overlay

"Protocols for the Maxillary Implant Overdenture: A Systematic Review"

- Study Design: Systematic Review
- Study Need / Purpose: To evaluate patient-related outcomes in restoring the edentulous maxilla with an implant overdenture

Sadowsky, Steven J, and Nicola U Zitzmann. "Protocols for the Maxillary Implant Overdenture: A Systematic Review." *The International Journal of Oral & Maxillofacial Implants*, U.S. National Library of Medicine, 2016, www.ncbi.nlm.nih.gov/pubmed/27228249.

Article 1 Synopsis

- Method
  - A systematic review of the literature
  - Publications reporting patient-based outcomes with data on implant and/or prosthetic success
  - Predetermined inclusion criteria that was agreed upon by the two reviewers.
- Results
  - 23 publications related to 20 study cohorts were identified to meet the inclusion criteria for maxillary implant overdentures
  - 2 RCT's , 13 prospective case series including two crossover trials and 5 retrospective studies.

Article 1 Synopsis Cont.

- Conclusions
  - IOD's offer a stabilized removable solution for the edentulous maxilla, which provides increased patient satisfaction and QoL.
  - A palateless design supported by four to six implants with a wide A-P span has been successfully applied in some investigations.
  - Higher failure rates with machined implants, particularly with short implants (length < 10 mm).
  - Both splinted and solitary anchorage systems are advocated. Maintenance is higher for solitary. Inflammation is increased beneath the bars.
  - Well-designed RCTs with larger sample cohorts and longer follow-up periods are required to amplify patient- and clinician-based outcomes.
- Limitations
  - Questionnaires did not account for language or cultural differences
  - Questionnaire timeline varied among studies
  - Articles included dated back to 1986

Article 1 Selection

- Reason for selection
  - Systematic review, and good selection criteria
  - Answers PICO question
  - Published in reputable journal
  - Focus is on maxillary dentures
  - Includes implant rates
- Applicability to your patient
  - Addresses what form of a maxillary denture provides higher patient satisfaction
- Implications
  - An IOD provides an increased QoL

"Patient-Reported Outcomes of Maxillary Implant-Supported Overdentures Compared with Conventional Dentures."

- Study Design: Case Report Study
- Study Need / Purpose: To compare patient-reported outcomes for maxillary conventional dentures and maxillary implant-supported dentures.

Zembic, Anja, and Daniel Wismeijer. "Patient-Reported Outcomes of Maxillary Implant-Supported Overdentures Compared with Conventional Dentures." *Wiley Online Library*, John Wiley & Sons, Ltd (10.1111), 15 Apr. 2013, onlinelibrary.wiley.com/doi/epdf/10.1111/clr.12169.

Article 2 Synopsis

- Method
  - 21 patients with edentulous maxilla encountering problems with existing dentures.
  - 12 received new CD's and 9 received relining or rebasing of existing dentures
  - Questionnaires were filled out for pre-existing conventional dentures, 2 months after insertion of new CD's and 2 months after insertion of IOD.
  - Questionnaires captured the oral health impact profile (OHIP) using visual analog scales. Seven domains (functional limitation, physical pain, psychological discomfort, physical, psychological and social disability and handicap).
  - In addition, the questionnaire involved the evaluation of cleaning ability, general satisfaction, speech, comfort, esthetics, stability, and chewing ability.
- Results
  - Patient satisfaction increased for IOD's compared with old dentures in all seven OHIP subgroups, as well as for cleaning ability, general satisfaction, ability to speak, comfort, esthetics, and stability.
  - Comparison of new CD's and IOD's revealed a statistically significantly increased satisfaction for functional limitation psychological discomfort, physical disability, and social disability.
  - General satisfaction, chewing ability, speech, and stability significantly improved in implant-supported dentures.

Article 2 Synopsis Cont.

- Conclusions
  - Maxillary dentures retained by two implants provided significant short-term improvements over conventional dentures in oral- and health-related quality of life.
- Limitations
  - Low patient population
  - Were already experiencing issues with the CD's
  - Only used 2 anterior implants in all cases

Article 2 Selection

- Reason for selection
  - Directly answers PICO question
  - Recently published
  - Focus is on maxillary dentures
- Applicability to your patient
  - Addresses what form of maxillary denture provides higher patient satisfaction
- Implications
  - An IOD provides higher patient satisfaction
  - Provided additional option for patients who already have not had success with CD's

"How Do Patients Perceive the Benefit of Reconstructive Dentistry with Regard to Oral Health-Related Quality of Life and Patient Satisfaction? A Systematic Review."

- Study Design: Systematic review
- Study Need / Purpose: Search and review studies published from 1996-2006 in which the impact of the treatment was measured in terms of QoL outcome, ideally, oral health-related quality of life (OHRQoL). Patient satisfaction was also accepted as an outcome.

- Thomason, J Mark, et al. "How Do Patients Perceive the Benefit of Reconstructive Dentistry with Regard to Oral Health-Related Quality of Life and Patient Satisfaction? A Systematic Review." *Clinical Oral Implants Research*, U.S. National Library of Medicine, June 2007, www.ncbi.nlm.nih.gov/pubmed/17594380.

Article 3 Synopsis

- Method
  - Used NICB PubMed based on MeSH headings
  - Hand searching of the cited references in the included papers identified a number of additional studies
  - The primary focus of the search was to link treatment to QoL outcomes.
- Results
  - Majority of studies involved the treatment of edentulous patients, particularly the mandible.
  - Most studies comparing conventional CDs and IODs were RCT's.
  - There was compelling evidence that patients were more satisfied with IODs than CDs and IOD's improved OHRQoL
  - Evidence suggesting that one retention system is superior to another needs further clarification. Although high satisfaction ratings have been reported for maxillary implant prostheses, the overall ratings given to the maxillary implant prostheses were not significantly greater than for CDs.

Article 3 Synopsis Cont.

- Conclusions
  - Apart from the restoration of the edentulous mandible with IODs or CD, where there is an accumulating body of evidence on the effect of treatment choice, there are many procedures for which there are little or no such data at all.
  - The entire range of reconstructive treatment has witnessed insufficient investigations relating treatment to its effect on QoL or satisfaction.
  - This is an area that needs to be expanded as a way of quantifying the effect of treatment choices.
- Limitations
  - Limited research specifically for IOD's on the Maxillary alone
  - Low patient population in selected studies
  - Included research dating back to 1996

Article 3 Selection

- Reason for selection
  - Strong level of evidence: Systematic Review
  - Includes research on comparison maxillary IOD's and CD's
  - Published in reputable journal
- Applicability to your patient
  - Addresses what form of maxillary dentures provide greater patient satisfaction
- Implications
  - Maxillary IOD's showed improved proved QoL

Levels of Evidence

- [x] **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
- [ ] **1b** – Individual RCT
- [ ] **2a** – Systematic Review of Cohort Studies
- [ ] **2b** – Individual Cohort Study
- [ ] **3** – Cross-sectional Studies, Ecologic Studies, "Outcomes" Research
- [ ] **4a** – Systematic Review of Case Control Studies
- [ ] **4b** – Individual Case Control Study
- [x] **5** – Case Series, Case Reports
- [ ] **6** – Expert Opinion without explicit critical appraisal, Narrative Review
- [ ] **7** – Animal Research
- [ ] **8** – In Vitro Research

Double click table to activate check-boxes

Strength of Recommendation Taxonomy (SORT)

☒	**A** – Consistent, good quality patient oriented evidence
☒	**B** – Inconsistent or limited quality patient oriented evidence
☐	**C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening

Double click table to activate check-boxes

Conclusions

- 1 slide
- D3: how does the evidence apply to this patient?
  - While a conventional maxillary denture is a viable option which will meet the standard of care, an implant supported overdenture can provide a higher quality of life and patient satisfaction.
- D4: how will you advise the patient?