

2019 JCEG XI Meeting Notes

orthoscience.com

- approached dolphinimaging.com for integration
- Like Pinterest for ortho.
- Integration with Dolphin
- Dolphin can de-identify
- Parallel effort by AAO: the board approved to create an orthodontic case database, which might compete with this.
- Dolphin could upload some data to orthoscience, but codes have to be well defined.
- Problem with ortho: It's too customizable, so data can't participate in big data, because everyone creates their own parameters instead of using codes.
- SNOMED/SNODENT codes are currently not being used, Ken Gladstone and Mark Hans were not aware of them.
- How about the DI score Discrepancy Index? Is this in SNODENT? Should this be considered for orthoscience integration.
- Some members include Stuart Frost, Francesco Garino... (see <http://www.orthoscience.com/team>)

American Orthodontist

- New Journal Elsevier journal
- online only
- a lot more clinical, with case reports
- Buzz Behrens as one editor

Dentacoin

- Blockchain in dental field.
- Not clear what they actually do.
- Most of the team members have Bulgarian, Russian and eastern European names.
- Have mobile app

Dental Monitoring

- Is growing and expanding in the US
- They are developing their technology, keeps getting better.

smiledirectclub

- they don't talk about straightening teeth, but straightening smiles.
- there are all kinds of disaster stories
- maybe Mark Hans can compete with them
 - Is smiledirect polymers really special as they say? After testing on chemical properties of thermoplastic materials, there is nothing special about it.
 - Carla Evans there are 3 published articles which study polymers of aligners, for things like discoloration and other properties, and other properties.

Teeth segmentation

- Collected and compared times for humans to segment teeth and mesh repair time from study model scans with Orchestrate, MotionView (w and w/o facial axis and teeth)
 - Repair the mesh
 - Segment the teeth
- Which one is better? Fast, but dirtier? How about quality?
- Times are always less than 4m per scan.
- Bottom line is: a private orthodontist can compete with smiledirectclub and still make a profit.

Printing Brackets

- Torque on the base: ISO standard for torque on tooth, definitions, abbreviations and measurements.
 - Big change is corrosion testing: if you print metal brackets you have to worry about corrosion.
- Can you print brackets with 3D printers? Yes. Printing Ch-Co printer and Stainless Steel. It's called centering for metal.
 - Is it economical? Probably not economical: if you do the math \$0.60/bracket, but the printer is \$300k. So if you have the printer, it's OK
- Printing with polymers should be possible with strong polymers.

Dolphin 12 (64bit)

- 64 bit resolves the 2GB RAM limit, allowing, for example, the user to superimpose larger FOV of volumes
- currently in beta
- showed how it's easy to superimpose intraoral scan with CBCT.
- showed how to segment a mandible out

- demoed complex surgical orthodontic case involving mandible and maxilla rotation, using temporary splints.
- showed 3D real time morphing from 2D tracing.
- [Ken Gladstone](#) showed a 3D printed half-size skull multicolor (airways in red, sinus in white, bone transparent)

bellus3D

- 3D scanning app for iOS (iPhone X or greater)

Bolton

- [Mark Hans](#) shows Ortho2 Bolton standards implementation (old version, now discontinued)
- [Ken Gladstone](#) shows how to do Bolton standards with Dolphin:
 - load bolton standard tracing into Dolphin
 - superimpose the tracing to a patient's ceph
- Dan shows Bolton standard on Ortho Insight Motion View software.
 - Has a Bolton button, which loads the correct bolton standard based on patient sex, age and race. Clicking the button pops up the bolton tracing.
 - relationship of overlay is saved automatically to patient, and it can be changed. [Mark Hans](#) pointed out that it shouldn't be changeable once the bolton tracing is imported to the patient.

Ortho Insight 3D Create your own Aligners

- asdf

Mesh

- [Carla Evans](#) shows 3D mesh norms for caucasians, for example.
- Chinese norm
- Attachments and length of upper lip

Review PreDoctoral Orthodontic CODA Standards

- [Carla Evans](#) projected the document and reviewed changes with the group.
- In CODA predoc, the word Orthodontic doesn't appear at all.

Discussion on new technologies

- Technologies which are displacing the orthodontist
 - smilesdirectclub
 - invisalign
- Haptics
 - I can find a good occlusion with real model in a second, but with virtual models it can take a very long time.
 - Gloves and haptic feedback machines could facilitate bite registration and speed up surgery and clinical planning.
- Intraoral scanners
 - are way overpriced: the technology in there doesn't cost as much
 - all of them produce bad quality images, which need to be cleaned before. Best way to choose is based on user experience and user interface.
 - ultrasound technology for intraoral scanners: seems like research is not progressing as it used to.
- DigiGraph
 - Cephalometrics with no radiation
 - Dolphin sold it for 50k from 1990-1996
 - Selecting landmarks directly on patient instead of radio-graph
 - Didn't work because there are some landmarks which are just too hard to get or too approximate, like Sella.
- Dental MRI
 - High cost
 - large machine
 - Seems like there is no news
- CBCT dosage
 - low dosage CBCT can be as low as 1 ceph + 1 pano, but at this low dosage, the resolution is lower, but the 3D information is higher.
 - reconstructing a 3D volume from a ceph and a PA will have high resolution 2D, but no extra 3D information.
- CWRU database
 - How can the rights of use be guaranteed? Blockchain could provide a solution to prove if someone has used images without permission, but then who would do the policing?
 - Maybe just having a system in place that allows an accuser to prove that a dishonest party has not followed the rule could be a deterrent for some ill intentions individuals.
 - Also adding watermarks might be a deterrent.
- Artificial Intelligence
 - We are starting to have technology so developed that we slowly can't trust our senses.
 - Radiologists will be all AI.
 - Extraction or non-extraction cases

File	Modified
Microsoft Word Document 2019 3 11 Legacy Curators.docx	2019-03-12 by Carla Evans
PDF File AAOF Annual Status Report 2018.pdf	2019-03-12 by Carla Evans
Microsoft Word Document 2019 03 12 - JCEG XI.docx	2019-03-12 by Carla Evans

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