2019 JCEG XI Meeting Notes

orthoscience.com

- approached dolphinimaging.com for integration
- Like Pintrest 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 orthoII: 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 Behrents 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 wo facial axis and teeth)
    - Repair the mesh
    - Segment the teeth
- Which one is better? Fast, but dirtier? How about quality?
- Times are always less then 4m per scan.
- Bottom line is: a 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'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
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