The Bandwagon
I jumped on an then off...
Disclosure information

I disclose the following financial relationships with commercial entities that produce health-care related products or services

Consultant for DePuySynthes, Switzerland
Considerable variability in expert’s opinions & decision making

Vitale 2010 CORR
EOS strategy 2018

Casting/bracing if no TIS (thoracic insufficiency syndrome) «buy time»

Growth modulating surgery >60° Cobb <10 years
- VEPTR if TIS
- Bilateral MAGEC growing rod construct if possible&affordable
- Conventional growing rods
- Growth guiding systems e.g. Shilla, modern trolleys
- Convex staples
- Convex tethers promising alternative to preserve function
VEPTR & Thoracoplasty

Vertical Expandable Prosthetic Titanium Rib  Chest cage enlargement & stabilization

Thoracic Volume-Depletion Deformities

I  absent ribs

II  fused ribs

IIIa foreshortened thorax  *e.g.* Jarcho-Levine

IVb transverse constriction  *e.g.* Jeune Syndrome

Campbell RM *2004* JBJS-AM
No fixation on the spine, minimized neuro risk

Polyaxial anchors, spine flexibility, no spontaneous fusion

Lung growth, function

True correction (growth modulation)

Anchor points intact for definitive fusion
Human beings are gregarious by nature

We are *dogma–prone* from our mother’s womb.

Human psychological *predilection for certainties*
Experience is what you get, when you get what you don’t want…

Success → Hopes & Promises → 10 expansions, 5y f/up → 7-10y to publication → <10y for change

**Certainty** what I do is great!  **Uncertainty** may be not?  **Certainty** for sure not!
Quality indicators – What made me jump off?

**Registries / Databases**
- Surgeon based
- Department based
- Hospital based
- National
- International networks
- Societies e.g. SRS Morbidity&Mortality database

**Complications**
- Neuro deficit
- Infection rate
- Revision rate
VEPTR in non-TIS patients

Hasler C et al 2010 Eur Spine J
less coronal correction and 3D control than GR in non-congenital deformities

Zivkovic V et al 2014 J Child Orthop
27/66 41% ossifications, iatrogenic rib fusions mostly around VEPTR implant

Dede O et al 2014 JBJS-Am
Neg effect on chest cage compliance and pulmonary fct ? N=21 TIS/VEPTR patients 6y f/up
Decrease of predicted FCV and increase of chest wall stiffness
Uncontrolled rotation, crankshafting

**Sotos Syndrom**
cerebral gigantism – f, 6 years VEPTR

7y, pre VEPTR  9y, post 5 expansions

**Arthrogryposis**

13y @ final instrumentation

16y
Indications for VEPTR

**Thoracic Volume-Depletion Deformities**

I  absent ribs
II  fused ribs
IIIa foreshortened thorax  *e.g.*  *Jarcho-Levine*
IVb transverse constriction  *e.g.*  *Jeune Syndrome*
MAYBE I’LL JUST JUMP ON THE NEXT BANDWAGON. I’M SURE ANOTHER ONE WILL BE PASSING SOON.
Anterior Convex Flexible Tethers

Progressive 3D correction
Discs, facets, muscles not touched
Motion preservation
No repetitive surgery

From Samdani AF ESJ 2015

Newton PO 2018 JBJS-AM; 2011&2008 Spine
Crawford CH 2010 JBJS-Am
Samdani 2015 Eur Spine J
Experimental lumbar scoliosis in growing sheep induced by a flexible concave tether: Spontaneous bilateral facet fusions

C. Hasler - Unpublished results
Concave lumbar vs convex thoracic tethering

Sheep
  constraint lumbar facet joints, high pressure when tethering

Human scoliosis
  subluxed, convex th facet joints; reduction w/ tethering
  thorax less mobile than lumbar spine
  more axial load in humans

Simple models & orthopaedic thoughts for complex biologic systems
Identifying and overcoming unhealthy modes of thinking.

Quality cycle

Medical intervention
Natural history

10 years? time tells
Can we shorten it?
How predictable are the game changers?
More bandwagons «band-ufos» to come
Artificial intelligence and neuronal networks