**** off, I know what I’m doing: Protocols in EHDI

Martyn Hyde

Professor, Otolaryngology/S-LP, University of Toronto
Assoc Director, Hearing, Balance & Speech Dept, Mt Sinai Hosp
Consultant, Ontario Infant Hearing Program &
British Columbia Early Hearing Program

mhyde@mtsinai.on.ca
First recorded clinical protocol?

- 2020 BC
- 3rd dynasty of city-state of UR, Mesopotamia
- Reign of god-king UMAMMA

- ‘Take dried wine dregs, juniper & prunes. Pour on beer. Rub the diseased part with oil and bind on the mixture…..’
First protocol skeptic...
Plato said, ~ 400 BC

‘Suppose clinical practise were governed by majority rules from an expert group ...which has merit...’

‘Given that the essence of professional practise is flexibility & innovation...’

‘Is it not endangered by such rules...?’
Audiogists’ challenge...?

• Best possible quality of care

• Complex & subtle area of practise
• Extraordinary pressure of time (x2)
• Avalanche of data & opinion
• Unprecedented program performance scrutiny
Father of Quality...
Avedis Donabedian 1919-2000
What is Quality of Care?
Donabedian A (1990): The seven pillars of quality

- **Efficacy**: at its best, *can* it improve health?
- **Effectiveness**: as delivered, *does* it...?
- **Equity**: *fairness* of distribution & access
- **Efficiency**: *max* improvement for *min* cost
- **Legitimacy**: conformity to *social values*
- **Acceptability**: conformity to *personal values*
- **Optimality**: best balance of *costs* & *benefits*
Two more challenges:
1 PE&QI  
2 EHDI is a chain

primary outcomes

Diagnosis  
Family info

Improved hearing

Improved language

UNHS

high risk surveillance

risk discovery

rescreening

birth

diagnostic audiometry

HA/CI fitting verification validation

language interventions

medical management

[.... program evaluation & quality improvement....]
Chain pain: $P(\text{success}) = P_1 \cdot P_2 \cdot P_3 \ldots$

$0.95^6 = ? \quad 0.90^6 = ??
Salvation is nigh...
Evidence-based practice (EBP)

- Triggered by multiple failures of E, E, & E
- Augmented by data & opinion avalanche
- Spawned multitude of PS,G,Ps...etc
- Some great successes but, overall, ~ 33% success in G/P use & outcome improvement. WHY?
EBP...issues at every stage...

- Quality of primary evidence (eg Cochrane collab.)
- Quality of synthesis (eg syst. revs, meta-analyses)
- Quality of guidelines & protocols (eg AGREE collab.)

- Quality of transfer & engagement:
  Knowledge Translation, Change Management

- Barriers & facilitators of uptake (Cabana et al)
Barriers to ‘adherence’
Cabana M et al, JAMA 1999;282(15):1458-65

Lack of awareness
Guideline? What guideline?
Haven’t read it yet

Lack of familiarity
Haven’t got the time

Lack of agreement
Wrong. Irrelevant. Cookbook
I can’t seem to manage it

Lack of self-efficacy
I know what I’m doing

Low outcome expectancy
No point. It won’t work

Previous-practice inertia
I know what I’m doing

External barriers
Haven’t got the time

Guideline barriers
Hard to use, inconvenient

Patient barriers
Patients don’t like it

Environment barriers
Not enough resources
Ontario Infant Hearing Program (IHP)
What we did & learned so far...(2001>..)

• 1m km², 13m, 134k B, 95% S, 1.3%F, 86%Dx, etc

• Protocols up the wazzoo

• Some success in practice change (80+ Auds)

• But not total success ...
IHP initial Dx protocol elements

- Tonepip ABR AC (2k>500 core) (4k>1k if indic.)
- Tonepip ABR BC if indic. (500, 2k), ipsi-contra
- DPOAE (nominal f2: 1, 1.5, 2, 3, 4k)
- MEA: tymps 1k < 6m, 226 >6m, ARs 1k ipsi (WN)
- ANSD & retrocochlear: click +/- CM/SP/CAP/ABR

- Optimal tactics for AC/BC, F, I , averaging, ABR decision-making, artifacts, etc..70/80p
Lessons from IHP protocol training
1:1, 3d hands-on 6 babies, all cases monitored

- The less experience, the more receptive
- Individual aptitudes & blocks
- Challenges: Bayesian tactical optimization, ‘can’t decide’ outcomes, active averaging
- Multiple case review very productive
- Post-training monitoring essential
Lessons from Elective Decision Support & Obligatory Audits

• Most Auds adhere to most protocol elements
• Many case reviews reveal low efficiency
• Those using EDS most are high performers

• A few know ‘better’ & disregard rather than challenge & improve protocol for everyone

• All Serious Adverse Event audits show major protocol violations
Good protocols should...

- Address in detail where the rubber hits the road
- Keep mandatory, critical elements to a minimum
- Inform discretion & contextual adaptation
- Include strong rationale (EB, logic, clin. experience)
- Include a process for challenge & improvement
- Have continuous, multimodal, post-training support
  eg decision support, updates, feedback, case library, websites, CQI audits, telehealth, meetings, etc
One major improvement for primary reports:
Enable re-analysis & meta-analysis

• ALL primary study reports should:

• List ALL subjects’ key parameters & outcome values (appendices)

• Allow web access to de-identified raw data files
James eagerly embraces his new bathroom protocol