Development & Implementation of Infant Hearing & Communication Development Programs

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Why universal screening?

- No other way to detect all PHL
- Family impact of PHL is large
- Societal cost of undetected PHL is large
- Irreversible neurodevelopmental change
- Family right to knowledge
- Child's right to equity of care ('open future')
- Early improved hearing (HA, CI)
- Early improved language & literacy
- Enhanced opportunity, productivity, etc

Multi-attribute HUI3 disutilities
0.0 = 'perfectly healthy', -1.0 = 'dead'

Condition	Disutility	Prev. %	Burden
Microcephaly	-0.75	1.8	30
Cerebral palsy	-0.65	8.0	116
Deafness + other	-0.60	0.7	9
Down syndrome	-0.57	6.9	88
Severe learning dis	-0.55	5.3	65
Deafness	-0.51	4.6	53
Autism spectrum dis	-0.49	4.7	51
Vision dis/blindness	-0.45	1.7	18

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- 'the disutility of (childhood) hearing loss exceeds that of the vast majority of other chronic conditions…….' Petrou S & Kupek E, MDM 2009

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Lifetime cost to society

- Median cost $ 1.25 million per person
- Special education >= $ 0.2 million pp
- Lost productivity, special education, other social services
- UNHS may be net cost saving

Theme 1 – a balancing act

- ‘In truth, whatever is worth doing at all is worth doing well…’ Lord Chesterfield, 1746
- ‘Get it right from the start…’

  Laurnagaray & Seewald, 2012

- ‘The perfect is the enemy of the good…’

  Voltaire, 1772
- The onion model - Pareto’s 80-20 principle…

Theme 2 – human nature

Barriers to success

Opinion, personal/professional agendas, limited knowledge, hubris, ‘experts’….

Facilitators of success

Genuine evidence, binding consensus,

Real expertise: direct personal experience, peer-reviewed publication, history of leadership, global best practice awareness, process awareness

Program concepts: Structure, Process & Outcome

- Structure = objects, people

  Babies, families, providers, $$, buildings, IT systems, equipment, supplies, protocols, information, etc.

- Process = actions, procedures

  Screening, diagnosis, intervention, management, reporting, connecting, training, measuring, etc.

- Outcome = effects, impacts

  Results, short- & long-term benefits, harms, side-effects, practises, perceptions, attitudes, etc.

Program concepts: the 3 main facets of program quality

- E1: Effectiveness - does it work in practise?
- E2: Equity - distribution of effectiveness
- E3: Efficiency - given E1, E2 at minimum cost

- Continuous Quality Improvement (CQI)

GO-SPO & EEE everywhere

…… Clinical service subprograms…… Supports

Capture → Screening → Xfer → Dx → Xfer → Intervene CQI MIS

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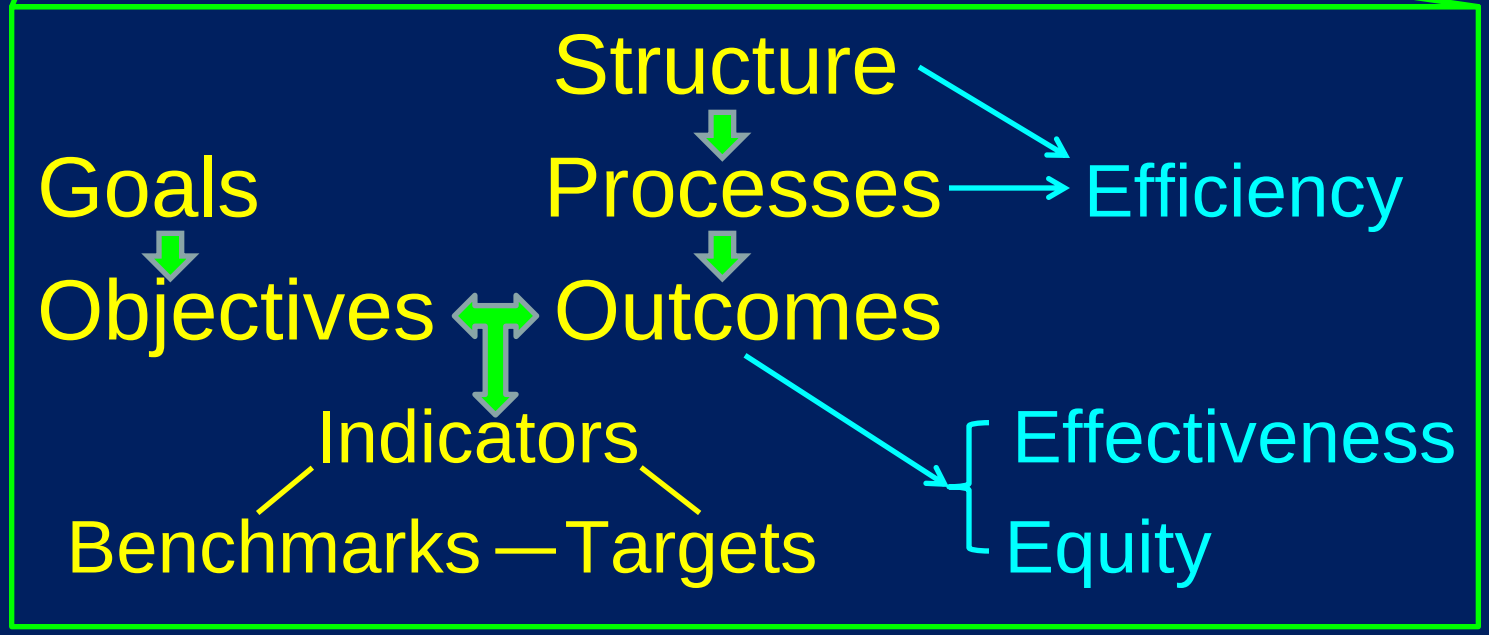

Development approach

Order of planning topics

Mission, goals & core values

Objectives: program & subprograms

Outcomes, indicators, targets, benchmarks

Information systems

Personnel & training

Protocols & quality management

Administration, control & synergy

Equipment & supplies

Challenges of maturation

- Vertical vs horizontal pressure
- Downloading of $$$ & control
- Fragmentation of structure & process
- Outcome variation
- Maintaining strong CQI
- Skills - caseload - access balance
- Provider support & change management
- Family engagement

Cost-effectiveness

- Personnel $ >> supplies $ >> equipment $
- Screening costs dominate S-Dx-I program costs
- Well-baby costs dominate screening costs
- Higher site caseload, lower cost/screen &/case
- Full-time screeners give lower refer rates to Dx
- Community screening refers much lower than hospital
- Vaginal 12-24h OAE refers much lower than cesarian
- >12 h after birth OAE refers much lower than earlier
- High-efficiency Dx protocols essential
- High-risk surveillance per JCIH costly, ineffective

Cost-effectiveness maximization

- Screen in busiest urban hospitals (eg 2,000+/y)
- Divert to non-hospital sites
- Use full-time screeners
- Do not use audiologists as screeners
- Tie community screening to routine visits if feasible
- Address high refer rates vigorously
- Optimize linkage to initial (diagnostic) assessment
- Use high-efficiency diagnostic protocols
- Optimize linkage to interventions

More radical cost reduction

- Blend universal & targeted screening, with phased expansion objectives
- Use very-high-risk indicator criteria, especially for familial hearing loss (parent/sibling only)
- Pass screen at first ear pass; stream only bilateral refers to immediate diagnostics
- Initial OAE screen for all, including NICU

Screening equipment : key procurement factors

- Support capability & commitment
- Field performance data (refer rate, speed)
- Physical (design, ease, functions, infection control)
- Robustness
- Supplies cost
- Capital cost, warranty, upgrade policy
- Protocols: refer rate, refer rate & refer rate
- Innovations eg AOAE/AABR combined, no PCs or carts, chirp ABRs, etc

GRACIAS MIL!

Por no quedarse dormido