SMA Type II & III

Patient perspective and priorities

SMA Europe

cure SMA

Luca Binetti (SMA Europe) – **Kenneth Hobby** (Cure SMA)

EMA headquarters - London, November 11th 2016

SMA Type II & III – patient perspective and priorities

1. **Disease burden/impact**

   SMA has a broad and devastating impact (direct & indirect) on the lives of ***all*** those affected and their families.

   - Initial diagnosis
   - Practical Impact
   - Emotional Impact
   - Psychosocial Impact
   - Financial Impact

2. **Meaningful change and MCID in SMA**

   Small change = BIG difference

Surveys & information sources:

1. SMA Europe Patient Survey (August 2015)

Aim: establish expectations re current therapeutic developments + meaningful therapeutic outcomes relative to QOL.

- Online questionnaire (Type II & III)
- 837 responses of which 98% from European countries
- Patients: 53%, Parent/carer: 47%
- Ambulant & non-ambulant (approx. 30:70)
- 34.5% required some form of ventilation assistance

SMA Europe

SMA Europe cure SMA

2. US Qualitative Study (2015)

Aim: to understand all the steps and stages that a family goes through; in seeing symptoms and then getting to a diagnosis, learning about the disease and care

- Published in BMC Neurol. 2015. Understanding the experiences and needs of individuals with Spinal Muscular Atrophy and their parents: a qualitative study.
- 91 patients, carers, clinicians and PTs across all SMA types
- 16 focus groups & 37 interviews (June – Oct 2014)
- Cure SMA, The SMA Foundation, Biogen Idec

3. The Voices of SMA (Pub. Sept 2015)

Aim: to increase FDA understanding of the patient perspective

- 75+ US families shared their stories via an online, open-ended survey aimed at increasing FDA understanding of patient/carer perspective
- 3 key themes emerged:
  - Psychosocial impact of living with SMA
  - Defining meaningful change
  - Parameters for measuring change

Disease burden/impact

Impact of Diagnosis

- Not all HCPs are sufficiently aware of SMA and can therefore dismiss parents' concerns and not do tests as early as they perhaps should

"…we spent 3-4 years trying to find a diagnosis and we didn't have any luck so we were jumping from doctor to doctor … the local doctors didn't have a clue of what could be wrong so we basically were struggling to find somebody to help us understand the problem." (Type 3 caregiver)

- Caregivers used words like 'shock', 'grief' and 'despair' to describe their feelings on receiving the news that their child had SMA

"It's definitely devastating news for the family. Particularly either Type I or II they have to tell the family the nature of the disease, the outcome and … it's impacting suddenly their whole lives. Initially they cannot imagine what they will face in terms of care for a child." (Clinician)

…Days, Weeks, Months, Years of anguish before having the news…

"the burden … is just feeling helpless. Knowing that your child has a disease that there's not really very much you can do about …And, no matter what, the disease will progress. I guess that was the initial burden, just knowing that this was going to happen and it was basically a train wreck that you had no control over."

Source: US focus groups

SMA Europe

cure SMA

Practical Impact

- Having and caring for a child with Type I or II SMA is more than a full-time commitment, usually involving careful scheduling of events for the child, their caregivers and therapists, nursing help and night-time help.
- For those with Type III, the commitment is not initially as constraining but as the child's abilities decrease, the demands on the parents become greater
- As muscular function decreases, the list of things the child is no longer able to do mounts and … eventually their level of independence is decreased
- For caregivers as well patients, anything that increases or decreases the child's independence is acutely meaningful

Source: US focus groups

"Due to Aaron's diagnosis he has no movements and he requires 24 hours ventilation and nursing. He has so much equipment it is hard for us to fit him and his equipment in a regular sized apartment." (*Caregiver Type I*)

Practical Impact

Inability to perform basic personal tasks (ranked by importance):

	% can't do
•Dressing her/himself	77.7
•Going to the restroom by her/himself	74.6
•Toileting her/himself	73.8
•Transferring from wheelchair to bed unaided	74.3
•Turning in bed	67.4
•Brushing hair	57
•Brushing teeth	33.5
•Self feeding	28.1
•Writing with pen	19.7
•Using a keyboard	17.4

Source: SMA Europe Survey

Emotional Impact

Caregivers	Children with SMA
Worry whether children will live or die	Children with Type II (and I) don’t know any other life and so (on the surface) don’t exhibit as much worry
Worry whether children will loose some Motor Ability	Children with Type II (and I) don’t know any other life and so (on the surface) don’t exhibit as much worry
Worry about ‘next event’	Children with Type III, especially those who could remember walking, or who were still walking, were frustrated and scared to get worse.
Worry about future and loss of functionality	
Worry about level of independence children will have as they get older	

Source: US focus groups

10 psychosocial effects of living with SMA identified:

1. Confronting premature death
2. Making difficult treatment choices
3. Heartbreak and fear at loss of functional abilities
4. Coming to terms with lost expectations
5. Loss of sleep and increased stress
6. Social discomfiture and stigma
7. Limitations on social activities
8. Struggle to achieve independence
9. Uncertainty and helplessness
10. Pressure on family finances

Source: US focus groups

"You have to roll her over, we have to place her arms where they're going to be when she falls asleep. Her head, her legs exactly how she wants them, and then she sleeps for a while, she wakes up, calls, and you go in and roll her over and place everything again….(we have to move her) every hour to an hour-and-a-half." (Caregiver Type II)

SMA Europe

cure SMA

Financial Impact

“This situation has impacted us financially as well. I have not returned to work as I have decided to stay home with him … Since we do not qualify as low income, we are not able to receive much assistance with…medical equipment… Everything else we have had to pay out of pocket…We are also concerned because we will need to move to a one-storey home in the future, but cannot afford to buy or rent anything in the area.” (US mother of SMA type II child)

Meaningful change and MCID in SMA

Small change = big difference

Type II/III Non-ambulatory

- Any improvement would be meaningful (esp if leads to more independence)
- Improved respiratory function has significant impact
- Less fatigue/greater endurance frequently mentioned
- Discussed importance of daily living activities

Source: US focus groups

Importance of stabilisation

Type II/III

- Stopping decline would be very meaningful (ambulatory & non-ambulatory)
- Maintaining daily living activities is critical (grooming, computer use, etc.)
- ‘Happy’ with what they are able to do now. Afraid of what will be lost next
- Unanimous agreement that any medication that did no more than stop disease progression would be meaningful

> *“But if we could just keep what we have, that would be enormous… There’s not a breathing machine at night yet. There’s not all of the rods in the back. There’s not all this stuff that I know could be coming. If I can just hold on to where we are … that would be big.”*
>
> (Carer Type III)

Source: US Focus Groups

Most important functions to stabilise

(priority ranking & total mentions)

	First priority	Second priority	Third priority	Total
Self feeding	**176**	**75**	**53**	**304**
Self toileting	**106**	**71**	**58**	**235**
Using a keyboard	66	74	75	215
Going to the toilet alone	**110**	60	43	213
Writing with a pen	59	80	66	205
Turning in bed	65	55	69	189
Transferring alone	84	35	48	167
Dressing him/herself	38	47	67	152
Brushing teeth alone	47	42	61	150
Brushing own hair	22	23	31	76

Source: SMA Europe Survey

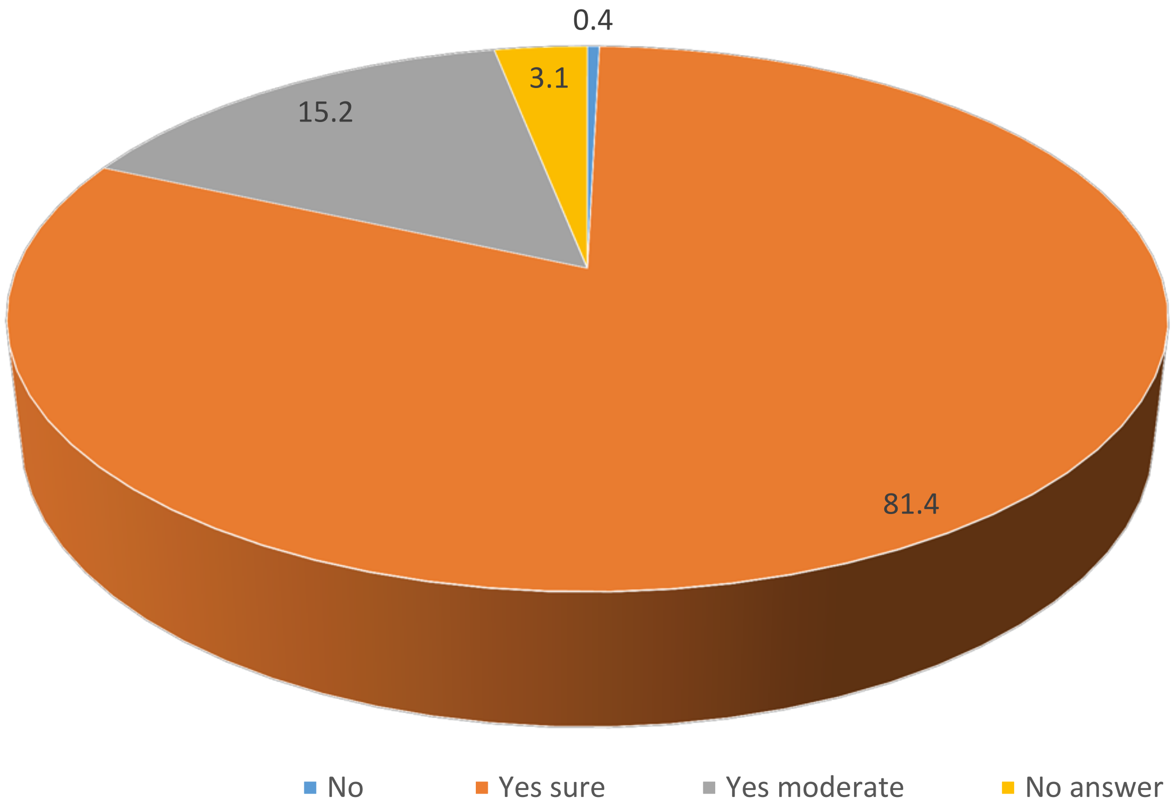
Most important functions to improve

(priority ranking & total mentions)

	First priority	Second priority	Third priority	Total
Going to toilet alone	**183**	**128**	**95**	**406**
Toileting him/herself	**143**	**95**	**92**	**330**
Turning in bed	114	86	89	289
Dressing him/herself	65	89	125	279
Transferring alone	**122**	61	83	266
Self feeding	90	48	47	185
Writing with a pen	41	44	53	138
Using a keyboard	48	34	29	111
Brushing teeth alone	29	25	27	81
Brushing hair alone	22	16	31	69

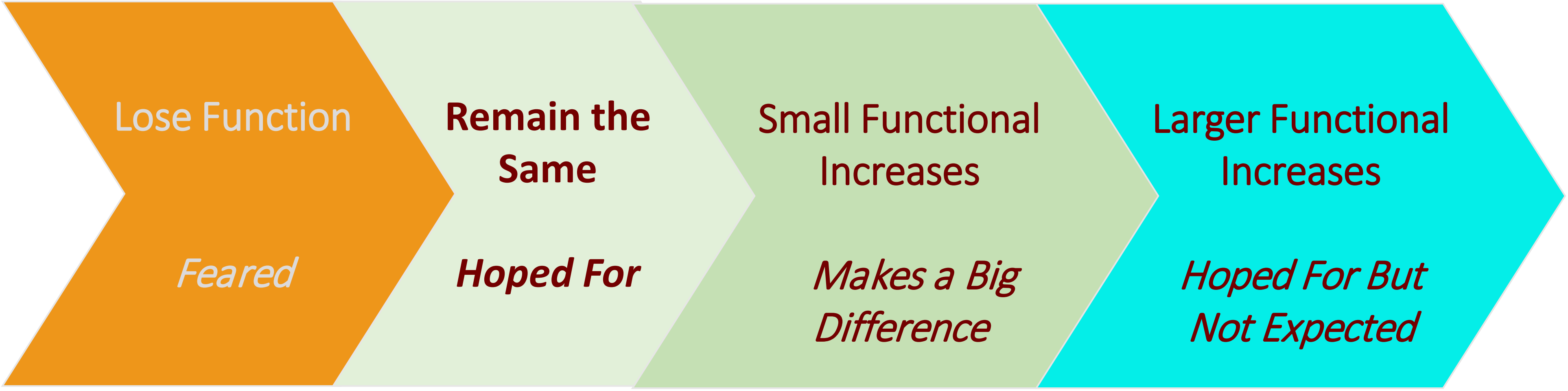
Source: SMA Europe Survey

97% think a medicine that could stabilise current clinical state would represent progress



Source: SMA Europe Survey

Summary



Lose Function

Feared

Remain the Same

Hoped For

Small Functional Increases

Makes a Big Difference

Larger Functional Increases

Hoped For But Not Expected

- Meaningful change is relative to current functional ability
- Everyone wants to avoid decline
- Small change = big difference
- Broad & devastating impact

> ***"There is such a difference between each of them, even within each of those types. Everyone's different, and every situation's different. Where one may have stronger arms, another one may have a stronger core. So it's just depending on your situation. Even within those types, it's different, so it's hard to pinpoint a type, let alone a person." (Type III Patient)***

Conclusions

- Take unmet need into account when considering risk/benefit
- Any therapy that stabilises or results in small improvement has huge value for patients
- Important balance between trials that can pick up highly individualised outcome measures and the need for broad spectrum therapies across all SMA types, gender and age groups.

TIME IS NOT ON THEIR SIDE …

“Time makes all the difference with a disease like SMA. Waiting for treatment versus getting it now is the difference between having a disability and a much, much more severe disability”

Esther Jensen, mother of Tanner and Skylar, SMA Type II

SMA Europe cure SMA