
"Social Determinants of Health Disparities in Rehabilitation and Reintegration: Some global, European and German challenges".

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General aspects

Income and income inequality, particularly when poverty is also present, are strongly associated with health status. Access to preventive and curative healthcare (related to insurance and high income) is important for health, not only regarding access to care (e.g. hospitalization, consultations), but also quality of care (e.g. treatment, communication and follow-up) ¹.

Even in the most affluent countries, people who are less well off have substantially shorter life expectancies and more illnesses than the rich. Not only are these differences in health an important social injustice, they have also drawn scientific attention to some of the most powerful determinants of health standards in modern societies ².

Poor social and economic circumstances affect health throughout life. People further down the social ladder usually run at least twice the risk of serious illness and premature death as those near the top. Nor are the effects confined to the poor: the social gradient in health runs right across society, so that even among middle class office workers, lower ranking staff suffer much more disease and earlier death than higher ranking staff ²

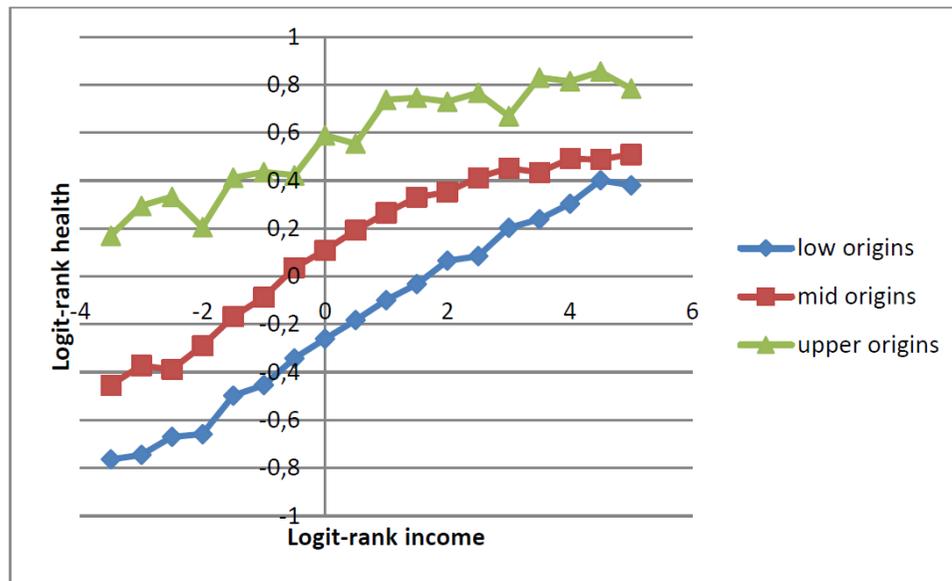
People's lifestyles and the conditions in which they live and work strongly influence their health.



General aspects

■ Some European statistics

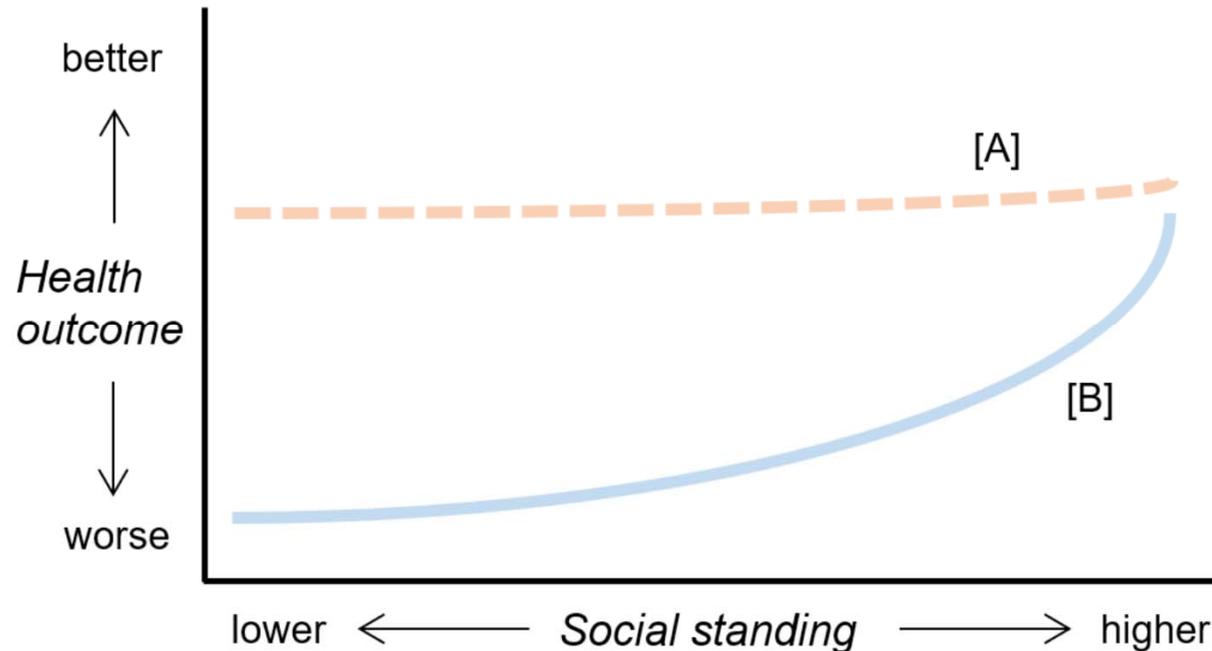
Associations of income and health, separate for low social origins (lower quartile of origins factor distribution), mid social origins, and upper social origins.



General aspects

- Some European statistics

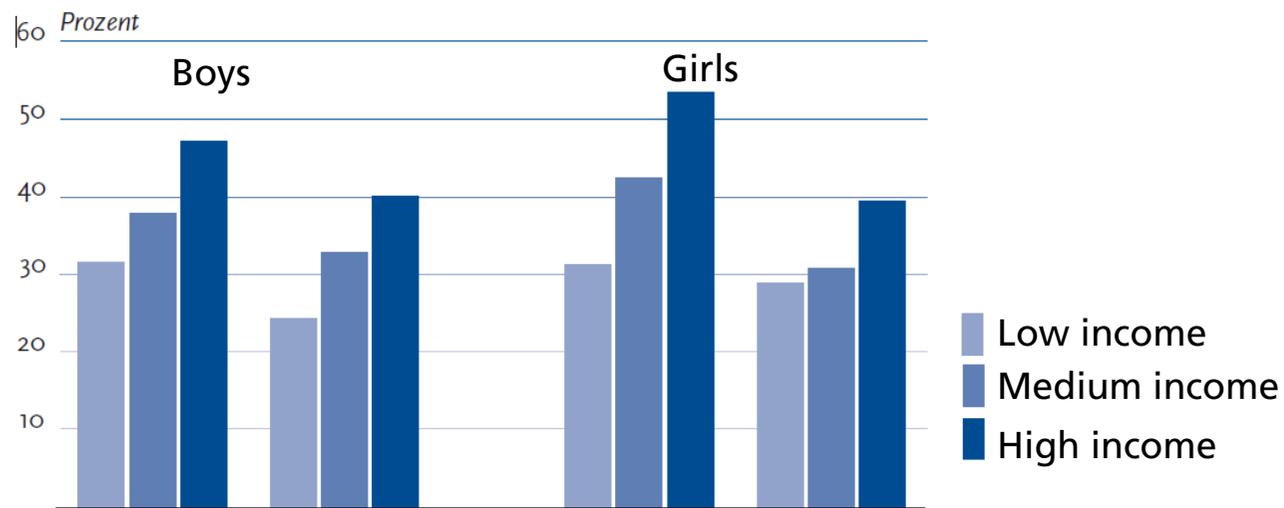
That poverty and social disadvantage are significant consequences for the health have development in childhood and adolescence, is through a variety of empirical Studies confirmed³.



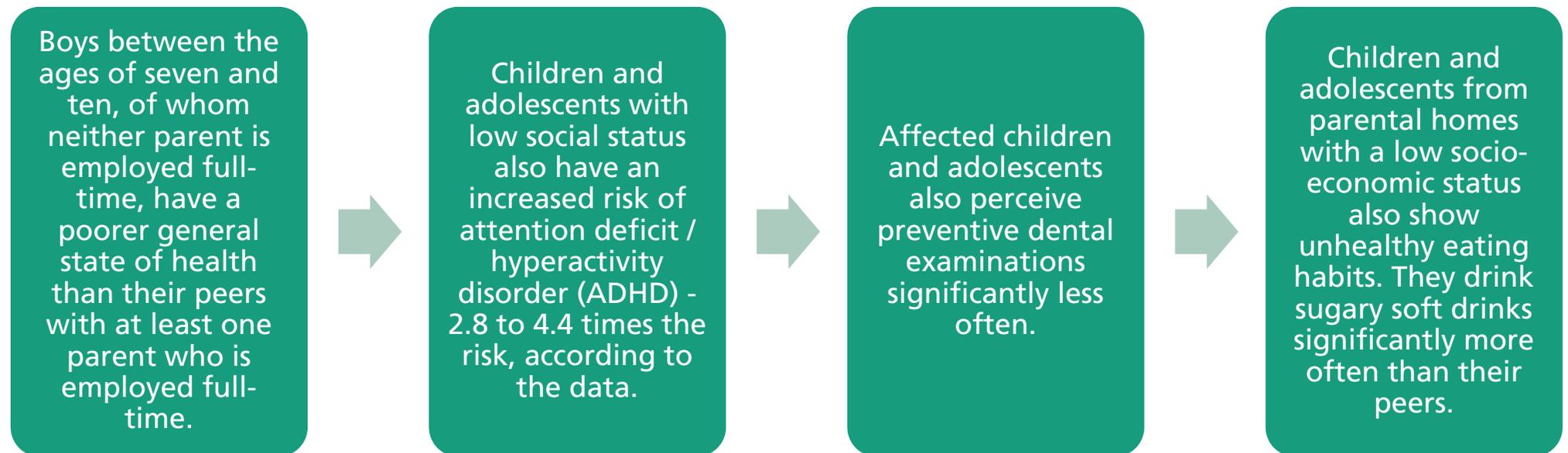
General aspects

■ Some German statistics

General health status (»very good«) of children and adolescents according to equivalised income



General aspects



³ Source: Studienergebnisse Soziale Benachteiligung-Ärmere Kinder sind häufiger krank, dpa, ZDF, 2020

General aspects

High levels of health enable individuals to improve their lives, and have positive implications for social mobility and cohesion. Consequently, reducing health inequalities matters for individual health, and also society at large.

Good health empowers individuals by allowing them to make better, informed choices regarding their lifestyle and health service access and utilization.

In contrast, ill-health may prevent individuals from reaching their full potential at school or at work, or from fully participating in activities of family, friends, and communities. In doing so, ill-health and health inequalities can lead to a vicious cycle: Low health leads to reduced economic opportunities—e.g., being too ill to work or having reduced productivity because of health problems—which further deteriorates health due to increased job insecurity.

³ Source: Health Inequalities in Europe: Setting the Stage for Progressive Policy Action Timon Forster, Alexander Kentikelenis and Clare Bamba

General aspects

■ Some German statistics

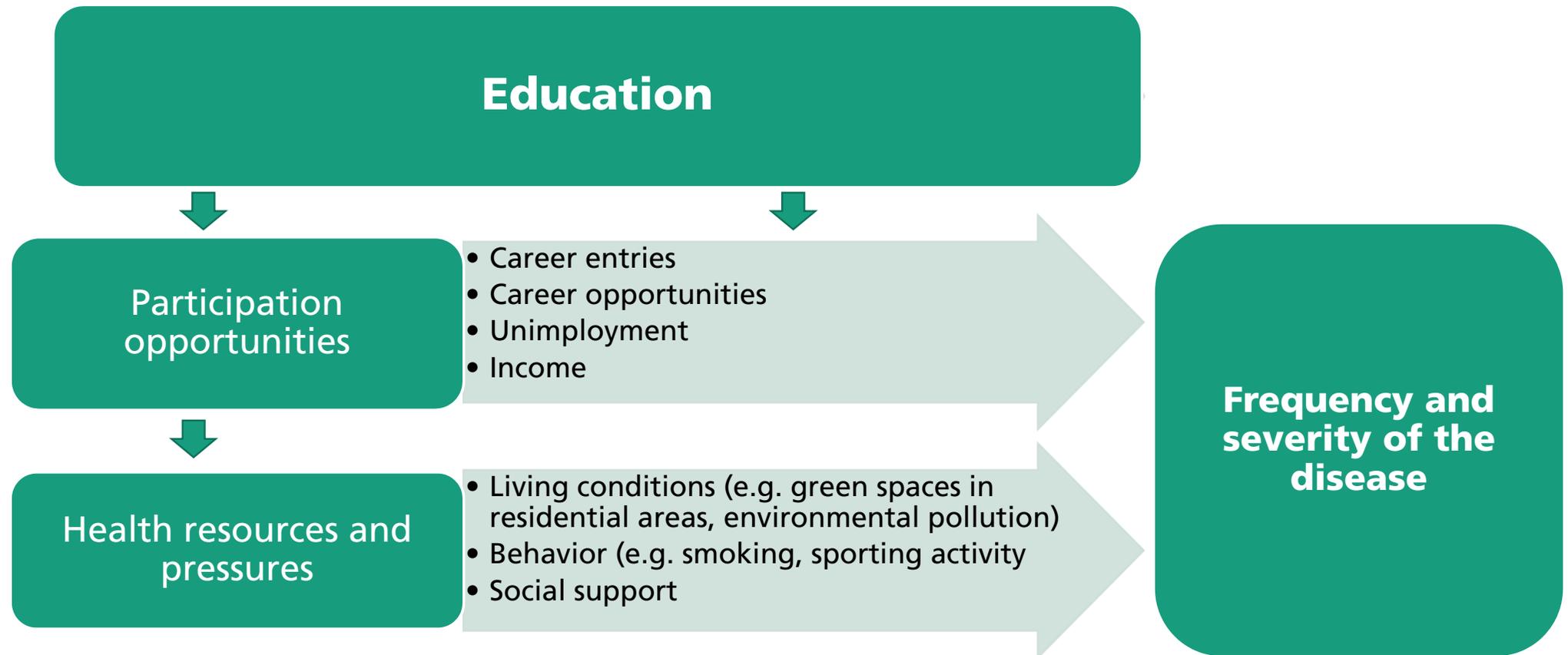
Education, poverty and health are mutually dependent

The relationship between education and health is confirmed by numerous studies. The higher the level of education, the better it is health and the lower the risk of illness and death. Also, better educated people often have a higher level of competence in dealing with health-related offers such as prevention and rehabilitation measures or with regard to participation in self-help groups.³

For Germany and many other countries it is regularly shown that there is a close relationship between the social and health situation. The social situation is thereby mostly about information on education, professional status and income recorded.

General aspects

■ Education and health resources



9 See also: The consequences of inadequate education for health, BertelsmannStiftung

Example Haiti: The need

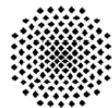


- This girl is a Haiti earthquake victim – she received an above knee amputation
- She is fortunate to have received a light-weight knee joint
- She will grow out of this knee joint soon in the few next years
- There is no continuous treatment guaranteed for her
- The prosthesis is a European product and is financed by Haiti catastrophe funds
- We need affordable growing prosthetic knee joints for kids in poor countries

Prosthetic foot Requirements –Tropical Countries -

**A SKYPE class room-to-class room students
Workshop
between
University Don Bosco, El Salvador and Fraunhofer
IPA/ University Stuttgart
27. January 2014**

Seite 1



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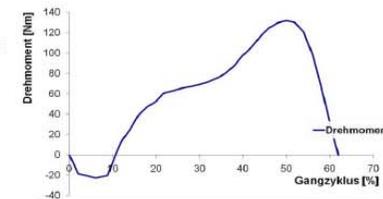
Prosthetic foot Requirements –Tropical Countries -

The prosthetic foot is a major component in lower limb prosthetics.

Being the interface to the ground the mechanical demands are critically high.

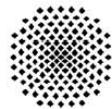
Current passive energy return feet do not meet various needs:

- The „all terrain capabilities“ are highly limited.
- Feet tend to break in farming and ranching activities.
- Tropical climate physical stress is critical (e.g. heat, moisture, „Kambodian rice field“)
- European/ US American approved devices do not meet market price needs.



Flex Foot Assure, Ös

Seite 2



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ASSESSING THE PROSTHETIC NEEDS OF FARMERS AND RANCHERS

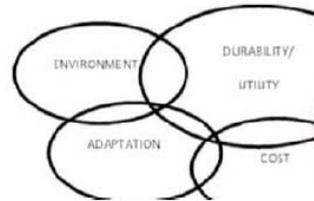
KE Waldera, MS¹, CW Heckathorne, MS¹, M Parker, MS², S Fatone, PhD¹

¹Northwestern University Prosthetics Orthotics Center, Chicago, IL and ²University of Illinois at Chicago, Chicago, IL

INTRODUCTION

Farming is a dangerous occupation with many agricultural workers experiencing disabling injuries each year of which amputations account for 11% (CDC, 2002). Experiential documentation and some qualitative research suggest that current prosthetic technology may not be meeting the needs of farmers and ranchers with amputations (Reed, 2004). In order to better understand the prosthetic needs of farmers and ranchers with amputations, a descriptive qualitative study was used to gather data with an engineering perspective.

changes to their equipment (with and without the help of prosthetists) as well as their farm routines in order to return to the profession they love. They incur high costs in the process. Both prosthetists and farmers described educational needs.



Seite 3

CONCLUSION

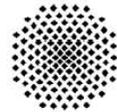
It seems clear that farmers and ranchers with amputation are a population with distinct prosthetic needs that faces specific challenges when returning to work. Engineers and prosthetists could facilitate the return to farming by creating more durable, affordable, and adaptable prosthetic components.



Prosthetic foot Requirements –Tropical Countries -



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Student Workshop UDB IPA Prosthetic foot Requirements –Tropical Countries -

- Harsh requirements for prosthetics in rural societies do not fit with market prices for available prosthetic ankles
- These requirements for prosthetics do not fit with manufacturing costs for available prosthetic ankles
- Potential 1: paradigm shift in design and manufacturing process
- Potential 2: paradigm shift to highly efficient automated manufacturing processes for a one world mass market (like in any other industry...)
- Potential 3: „frugal manufacturing“: minimal viable highly automated production machinery for affordable quality to cost solutions

Everyone needs assistive technology: today or tomorrow



20 November 2018 05/21

Getting numbers behind: 1.5 Billion



**970 million
need glasses**



**360 million people
need hearing aids**



**150 million people
need cognitive aids**



**35–40 million
people need
prostheses or
orthoses**



**150 million people
need mobility aids**



**75 million people
need wheelchairs**



20 November 2018

18/21

Need: 1.5 billion today and 2 billion by 2030



But why? A clear example of market failure



- Awareness
- Gap between need, demand and supply
- Gap between innovators, producers, buyers, providers and consumers or potential consumers
- High margin – low volume
- Dependency on western market

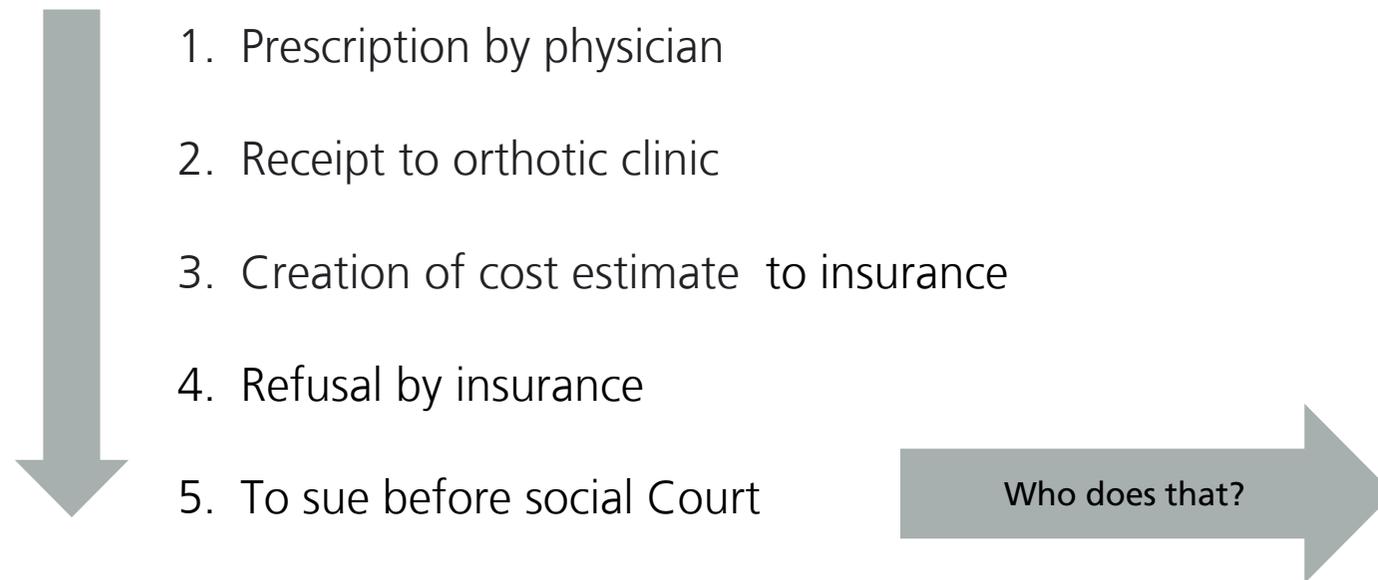


20 November 2018

14/21

Example: pediatric orthopedics cerebral palsy AFO prescription process

Scenario: „child growth out of AFO“



Example: pediatric orthopedics cerebral palsy AFO prescription process

- Strong need for strong clinical evidence in OnP treatment (level 1, 2 and 3 study results) to facilitate reimbursement („receipt and buy“)
- Potential 1: enable registers for strong prospective clinical data
- Strong need in public education and assist to guide through the social legal framework
- Potential 2: social-political discussion on how to educate especially lower education-level family to „know their rights“

Summary I

The multiple causes and consequences of health inequalities indicate that national health systems in Europe need to become more responsive to the needs of their populations.

Good work and employment conditions support health through multiple mechanisms—ranging from financial stability to social status, and from providing social networks to the protection from psychosocial hazards. Bad work and employment conditions—often concentrated among populations in vulnerable situations—can have the opposite effect, thereby widening inequalities in health.⁴

Life expectancy—the average number of years an individual can expect to live at a given age—by education reveals substantial differences between countries and gender. For example, across 23 selected OECD countries, the gap in life expectancy at age 25 between individuals with high level of education (tertiary education) and low level of education (primary and lower secondary education or less) around 2011 is—on average—7.7 years for men and 4.6 years for women

Without health and social measures that compensate for poor health, individuals are not able to fully participate in political and social life.

Summary II

Proposed solution paths

- Public Health / Political Sciences: develop/improve patients/ parents level of information
- Public Health / Political Sciences: deep analyses on socio-economic causes why assistive devices are so hard to distribute world-wide
- Technology research: design/ development and production of a next generation of highly robust, highly available and highly affordable assistive devices.
- Health research and registers: focus on standardized prospective multicentric health care and treatment data instead of single novel studies.