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Modelling Levels of Collaboration Among Health and Social Care Professionals in the Management of a Mental Health Plan

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Abstract. Professional collaboration among health and social care providers is considered an essential pattern to improve the integration of care. This is particularly important considering the planning activities for children with complex conditions. In this paper the level of collaboration among professionals in the development and implementation of the personalized plan in the mental health domain is analysed across 30 EU/EEA countries within the MOCHA project.

Keywords. Business process modelling, UML, children, professional collaboration, mental health, ASD, ADHD

1. Introduction

Integrated care is increasingly being promoted as a means for improving accessibility, affordability and the quality of health care [1]. It is often related to the high degree of collaboration between care settings that can improve communication among professionals as well as the efficiency and the continuity of care especially when treating children with complex needs [2]. Moreover, the interaction of services leads to higher quality of care at a lower cost and improves patients' health and satisfaction [3]. Different approaches can facilitate collaborative care: improve communication between services, introduce "shifted outpatient" models involving psychiatrists and multidisciplinary teams (MDTs) in consultation-liaison models [4].

In this study, the level of collaboration among primary, secondary and social care professionals has been analysed considering the care coordination activities of developing and implementing the personalized plan for children with ASD (Autistic Spectrum Disorder) and ADHD (Attention-Deficit/Hyperactivity Disorder). It is part of the MOCHA (Models of Child Health Appraised) project[2] that aims to appraise the existing primary child health care system models in 30 EU/EEA countries. The paper is structured as follows: the methodology to describe the level of collaboration among professionals is reported in the next section based on the UML use case diagram as part of the framework proposed in [5]. Section 3 reports the application of the methodology on the ASD and ADHD conditions identifying the patterns of collaboration among the MOCHA countries. Finally, conclusions and discussion are presented.

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2. Methods

The level of collaboration among professionals is captured analysing the answers of questions provided by local experts in child health services (i.e. Country Agents (CAs)) through two ad-hoc questionnaires [6]. In particular, 20 and 19 CAs have provided answers to the questions related to the management of the plan, respectively for ASD and ADHD. In this paper the analysis is focused on questions that report the type of professionals involved in the development and implementation of the personalized written plan, highlighting whether they work as a team or as individuals, each one carrying out specific professional-related activities.

Moreover, given that these activities represent a crucial point in care coordination, we further specialized the MDT to capture the different skill mix composition considering professional care specialization. The composition of the teams provides indications on the interface between primary, secondary and social care, also comprising the school care professionals. Therefore, the different levels of collaboration have been identified and classified as follows:

1) *Professional collaboration*, that is a MDT composed by mental, primary and social care professionals that may also comprise school care professionals;
2) *Mixed team* that is composed as follows: a) mental health professionals and social professionals (e.g. social worker, counselling centre) or b) primary care physicians and social professionals;
3) *Secondary and primary care team* composed by specialists in mental health (e.g. psychiatrist) and primary care physicians (e.g. paediatrician);
4) *Care team* that is composed by professionals belonging to the same setting: a) mental health or b) primary care or c) social care professionals;
5) *Individual professionals* that identify either health or social care providers not working in a team;

Starting from these categories, a pictorial representation of the results has been adopted using the UML use case diagram that provides a static description of the activities related to the development and the implementation of the personalized plan for both conditions. The diagram also provides notes that report for each country the types of actors involved in the related activity as highlighted by the dotted lines.

Finally, an overall analysis of the mental health conditions has been performed by grouping countries according to the relevant levels of collaboration to capture pattern differences in the treatment of ASD and ADHD.

3. Results

3.1. UML use case diagram

The UML use case diagram depicted in Figure 1 provides a static description of the activities related to the development and implementation of the personalized plan for both conditions. Considering team composition the following levels of collaboration have been identified:

1) A professional collaboration among primary, secondary and social professionals composing a MDT for the treatment of ASD and ADHD. In some countries, such as Denmark and the UK the collaboration also comprises school professionals;

2) Mixed teams composed by mental health and social care professionals for ASD (Belgium, Estonia, France and Greece) and ADHD (Estonia and Greece). In both conditions in Estonia the team also comprises the school social teacher;
3) A secondary and primary care team for ASD (Czech R. and Poland) and ADHD (Poland)
4) Care teams who composition generally includes mental specialists (e.g. neurologists, psychiatrists, speech and occupational therapists) in ASD (Bulgaria and Germany) and ADHD (Germany).

Other actors are involved in these activities as individual professionals but not working in a team. These actors generally belong to specialized mental health settings, except for Lithuania where the primary care is responsible for both activities.

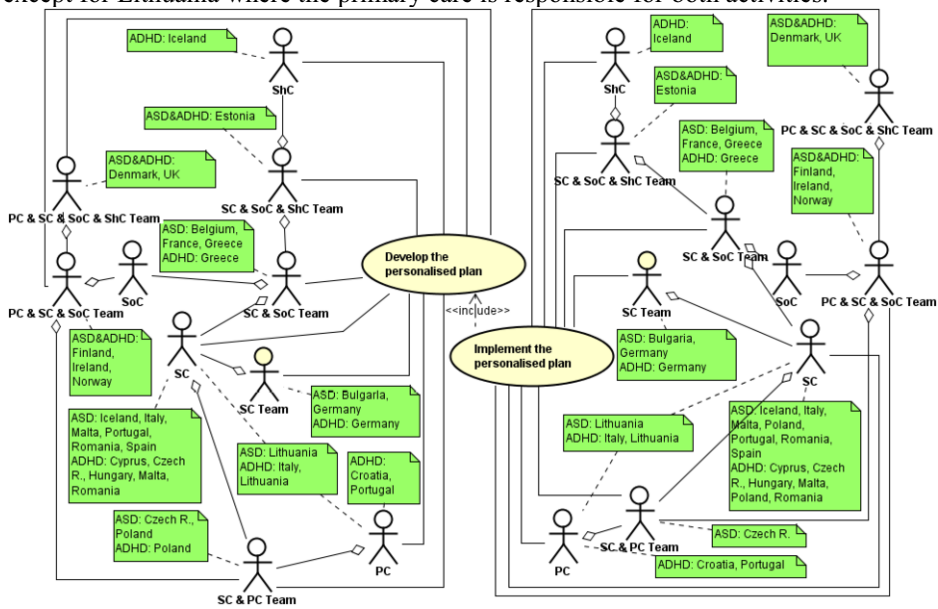

Figure 1. UML use case diagram summarizing the level of collaboration of each MOCHA country for the development and implementation of the personalized plan considering both ASD and ADHD. PC = Primary Care; SC = Secondary Care; SoC = Social Care; ShC = School Care

3.2. Analysis of the level of collaboration

In this paragraph the analysis of the level of collaboration in the MOCHA countries is reported for the two mental health conditions investigated. To represent this information a bubble chart (Figures 2) is developed for each complex condition highlighting both the development (horizontal axis) and the implementation (vertical axis) of the personalized plan. The criteria to determine the scale of values reported in the chart are based on the assumption that: the lowest level of collaboration occurs when the activity is performed by individual professionals coming from the same setting (for instance, secondary care physicians), while the highest level takes place when the activity is performed by a professional collaboration among providers coming from mental, primary as well as social care settings. In particular, the scale of values used to develop the bubble charts are: Professional collaboration = 5; Mixed team = 4; Secondary and primary care team = 3; Care team = 2; Individual professionals = 1. The size of each bubble is proportional to the number of countries classified in the specific level of collaboration. Moreover, two

dotted red lines have been added to the figure to specify the coordinates of the barycentre that highlights the average level of collaboration in a specific complex condition. The barycentre has been calculated using the weighted arithmetic mean where the weights are the number of countries detected for a specific level of collaboration. As highlighted in the charts, in a significant proportion of countries both activities are performed by individual professionals mainly with skills of mental health not working in a team. However, when a collaboration is in place, the social component in team composition is represented either in mixed teams together with mental health professionals or in professional collaboration where the teams also comprise primary care physicians. If we consider the activities related to the plan, generally the professionals who plan the personalized care path are the same who perform it.

Starting from these results an additional bubble chart has been developed putting together the barycentre values of the two complex conditions, as shown in Figure 3. Also in this case two dotted red lines have been added to specify the coordinates of the barycentre that highlight the average level of collaboration of the whole mental health in the MOCHA countries. As underlined in the chart, a higher level of collaboration is present for ASD in comparison with ADHD. This may be related to the fact that ASD is a more established diagnosis, while there is still controversy over the legitimacy of ADHD as a neurodevelopmental condition, with some physicians sceptical of its biological characteristics. Consider also that ASD generally is classified as a disability whose level has to be assessed both by social and mental health professionals to figure out the type of services and support for the child.

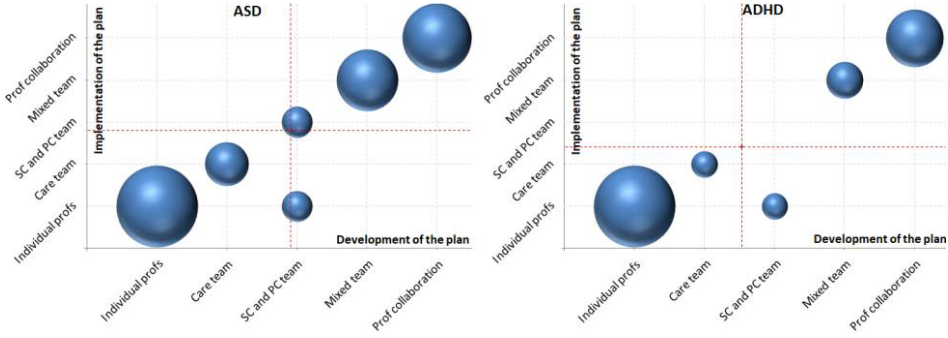

Figure 2. Level of collaboration for each complex condition

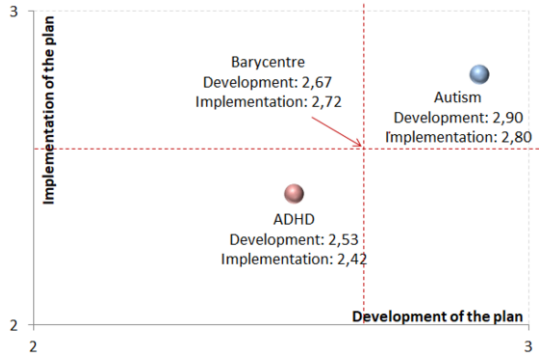

Figure 3. Overall level of collaboration for both complex conditions

4. Conclusions and discussion

The paper describes the level of collaboration among primary, secondary and social professionals in the care coordination activities for children with enduring mental health conditions in place in the MOCHA countries. A low level of collaboration is traced in the development and implementation of the personalized written plan in the half of the countries analyses. A slightly higher level of collaboration has been found for the ASD considering both the implementation and the development of the plan. In five countries this is carried out by a professional collaboration, in same cases based on the development of an ad-hoc service provided by a co-located team. This is the case of the municipality-centred service provision typical of the Scandinavian countries. Countries such as Ireland and UK have developed disability networks to provide integrated care based on child's needs where it is crucial to have a team leader or key worker who coordinates the team activities. Of course a key component of collaboration is represented by a shared electronic record that can help professionals being updated on the execution of the child's pathway as stated by the Estonian CA. This aspect is addressed by the MOCHA project in ad-hoc analysis [7]. Considering the social aspects of the child's care, the best pattern of collaboration includes social workers and school care professionals, but this is implemented only in a minority of countries.

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