



Models of Child Health Appraised

(A Study of Primary Healthcare in 30 European countries)

Final report on the description of the various models of school health services and adolescent health services, including quality assessments and costs

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School and Adolescent Health Services in 30 European countries: a description of structure and functioning, and of health outcomes and costs

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EXECUTIVE SUMMARY

BACKGROUND: The Horizon 2020 funded MOCHA-project (Models of Child Health Appraised) aims to identify optimal models for primary care for children and adolescents. Two main aspects of primary care for children refer to School Health Services (SHS) and Adolescent Health Services (AHS). The main goal of this study was to explore the structure and process elements of European School Health Services (SHS) and Adolescent Health Services (AHS) and to assess which elements seem to be beneficial for children's and adolescents' health. This main goal was divided into three objectives: 1) To explore the organization characteristics, service characteristics and health priorities of various models of school health services and adolescent health services in the European Union (EU) and European Economic Area (EEA) countries; 2) To assess effects and outcomes of the various models of school health services and adolescent health services in the EU and EEA for children (≥ 4 years of age) and adolescents and 3) To assess the costs of the various models of school health services and adolescent health services in the EU and EEA for children (≥ 4 years of age) and adolescents.

METHODS: Data on SHS and AHS were collected in 30 European countries. These data describe the structure and process of functioning of health systems, and health outcomes and costs. Data collection comprised a number of steps. We first adapted the PHAMEU (Primary Health Care Activity Monitor for Europe) framework for primary care for adults to SHS and AHS for children and adolescents. The adapted PHAMEU framework disentangles SHS and AHS in three essential structure dimensions (governance, economic conditions and workforce) and four process dimensions (access, comprehensiveness, continuity and coordination). Secondly, we collected data on these dimensions across 30 European countries via the MOCHA country agents and from existing databases. Thirdly, we analysed the data in order to describe basic and organizational models in the 30 countries. In the final step, we collected data on health outcomes and costs to relate this data to the models of step two.

RESULTS:

The first objective of this study was to explore the organization, service characteristics and health priorities of various models of school health services (SHS) and adolescent health services (AHS) in the EU and EEA

One of the most important findings is that of the 30 countries, except for two, all have **SHS**. In this report, we present an overview of several characteristics (features and indicators) on which SHS and AHS in The EU and EEA are based. In a next step we tried to merge features and indicators into a model. Regarding SHS it was only possible to assemble features and indicators within the dimensions 'Governance' and 'Workforce' in a cluster of countries. Reason for this was that only these dimensions contained features and indicators that showed a relatively consistent pattern within countries. Based on these two dimensions we could cluster countries regarding their values for the features 'national policy on SHS', 'responsibility of authorities', 'quality assurance' and 'multidisciplinary collaboration'. This led to a cluster of countries with an extensive national policy on SHS (Bulgaria, Croatia, Finland, the Netherlands, Norway, Poland, Portugal, Sweden and UK (England) and UK (Northern Ireland)), with a basic national policy on SHS (Cyprus, Estonia, France, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg and Romania), with a limited national policy on SHS (Austria, Denmark, Germany, Greece, Hungary, Malta and Slovakia) and with no SHS at all (Czech Republic and Spain).

Regarding **AHS**, we also identified groups of countries whose AHS were organized more or less in the same way, in other words, they gave similar answers on/descriptions of the features and

indicators on equity in access, quality management infrastructure, confidentiality and autonomy. This led to a cluster of countries with an extensive policy on AHS (Denmark, Finland, France, the Netherlands, Norway, Spain, UK (England), to a lesser extent Croatia, Czech Republic, Estonia, Italy, Portugal and Slovenia), with a basic policy on AHS (Austria, Belgium F, Bulgaria, Germany, Greece, Ireland, Luxembourg and Sweden) and a limited policy on AHS (Cyprus, Hungary, Iceland, Latvia, Lithuania, Malta, Poland, Romania, Slovakia).

The second objective was to assess effects and outcomes of the various models of school health services and adolescent health services in The EU and EEA for children (≥ 4 years of age) and adolescents

Our initial objective was to assess effects and outcomes of various models of SHS and AHS. During the project, we had to conclude that we could not realise this objective, as a sufficient amount of reliable process and outcome data appeared to be not available. Therefore, the research team decided not to report on the associations between models and health outcomes. Instead, we have related features and indicators of our models to current standards of SHS and AHS. In the following text, we first present the comparison of our findings with the WHO framework for SHS; subsequently, we present the comparison of our findings with the WHO Adolescent Friendly Health Services (AFHS).

School Health Services (SHS)

The first important feature of SHS as acknowledged and supported by the European framework for quality standards in SHS and competence for school health professionals of the WHO was the *intersectoral, inter-level responsibility and facilitation of SHS*. In the majority of the countries, the development of the 'content and scope', 'workforce' and 'funding' of SHS is a shared responsibility of national and local, and health and education authorities

The second important features of SHS were *equity and access*. Most countries have SHS. countries that did not have SHS were the Czech Republic and Spain. In the majority of the participating countries no great variations in SHS between regions exists and/or national regulations for SHS have to be followed, which may increase equity in access. The equity in access in our study was further operationalized by asking for policies on school drop-outs and on vulnerable pupils. Half of the countries had a comprehensive policy. The accessibility of SHS may be influenced by the organization of SHS. SHS can be school based, a distinct structure in the health system, or offered by providers in primary care. In most countries SHS provision is a mixture of structures.

The third feature of SHS was *quality assurance*. In more than half of the countries, quality management infrastructure is safeguarded by working with clinical recommendations, regulation and/or standard sets. In most of these countries, the quality recommendations or standards were performed by SHS themselves or by external inspection. Publication of the results of the quality assurance for the public was less common in countries.

The fourth feature was *collaboration*. The current study focused on cooperation between SHS and other forms of PC services, for which in about half of the countries formal national recommendations were formulated. Some countries have regulations for the exchange of information between SHS and other health care professionals, and some countries have formal agreements on cooperation and division of tasks between the different services. Half of the countries do have formal recommendations that support inter-professional working within SHS.

The fifth feature was *tasks, roles and competence of SHS staff*. In the great majority of the participating countries, SHS is provided by a multidisciplinary team of health professionals, consisting most often of at least a school nurse and a school doctor. In almost half of the countries this team is supplemented by other types of health professionals. These SHS providers have clearly defined and written job descriptions in more than half of the countries. The knowledge and skills of SHS providers are also acknowledged as important factors for SHS to function optimally. In only one third of the countries SHS providers were reported to be adequately trained and in only half of the countries specialization in SHS is needed for SHS providers for employment. SHS providers in one third of the countries have access to supervision and feedback on their performance. In most countries information on the ratio of SHS provider-to-pupil was not available or depended on the size of school and was therefore not easy to translate to a national level. Countries all indicated that there is a certain or severe shortage of SHS personnel.

The sixth feature of SHS was *data management*. About two thirds of the countries have a policy for schools to keep and update information concerning the health of children and about one third have policy on easy access to this information.

The seventh feature of SHS was *stakeholders' involvement*. We found that stakeholders' involvement is most often only weakly developed, especially as it regards involvement of medical insurers and parents. Medical providers and children were more often, direct or indirectly (e.g. identifying needs of children by epidemiological data) involved. A more active involvement of families, caretakers and teachers was mentioned to be a challenge by most participating countries.

The eighth feature was *packages of SHS*. A wide range of services is provided by SHS in the participating countries. In half of the countries SHS providers are involved in medical care. Preventive care consisted in almost all countries of screening, disease prevention and mental health. Visual acuity and dental screenings were performed by most countries and STI screening was less often performed. Disease prevention consists in about two third of the countries of vaccinations, referrals for health conditions, infection control, surveillance of school's hygiene conditions and emergencies handling. In addition, in more than two thirds of the countries schools have a national policy on Health Promoting School, indicating that in many countries a healthy setting for living, learning and working is seen as important.

Adolescent Health Services (AHS)

The first important feature of AHS is the *existence of guidelines for AHS*. Guidelines regarding AFHS are available in almost half of the countries. In addition, more than half of the countries have specialized centres delivering adolescent health care, although generally in urban areas, and some tackling specific issues (such as sexual & reproductive health or mental health), whereas other ones more broadly oriented. In many countries AHS seemed to be run by a multidisciplinary team, and in eleven countries, professionals in charge have received a formal training in the field.

The second important feature is the attention for *ethical issues: rights and confidentiality*. Almost half of the countries surveyed indicated the existence of a formal legislation or policy tackling the issue of confidentiality, and only one third provides some guidelines as how to address the issue of the assessment of the young person's competence. Confidentiality not only concerns the

content of a given encounter but also the right to access to health care without the parents necessarily knowing: in twenty countries, adolescents have the right to consult a doctor without the parents (or any substitute) knowing, and in around the same proportion of countries, the adolescents have the right to choose their doctor themselves. Finally, shared decision-making (e.g. the right to refuse a treatment or choosing another alternative than the one of the parents) is as well a right for young patients, and around half of the countries signalled the existence of such a policy.

The third important feature was *access to health care*. Only around half of the countries have developed policies or strategies that aim to improve access to care for adolescents in vulnerable situations. Half of the countries offer translators if needed, at least in some regions, and provide professionals who have an expertise in cross-cultural issues to help adolescents who need it. Moreover, just half of the countries have policies which encourage an inter-professional approach to disruptive behaviours of adolescents having left or being about to leave the mainstream education.

The fourth important feature was *access to some specific AHS, e.g. mental health and sexual & reproductive health*. The majority of countries have some kind of suicide prevention program and a similar number is able to provide same-day referral appointment for suicide or severe mental health breakdown. Only a third of the surveyed countries provide guidelines to primary care physicians on how to screen mental health problems and disorders; and only seven provide some systematic screening of risk taking behaviour in their ambulatory settings.

Access to contraception is largely covered: In all countries for which answers have been returned, it is possible to obtain emergency contraception. Half of the countries have multiple options where a young person can obtain the emergency contraception. All countries have multiple options to obtain pregnancy tests and in most countries, condoms are easily available. Although only nine countries provide oral contraception free of charge, adolescents can obtain such contraception easily in most countries. More than half of the surveyed countries have centres that provide counselling and care in the specific area of sexual and reproductive health. However, as far as the primary care level is concerned, it is distressing to note that only six countries have specific guidelines or policies as how to address the issue of adolescent pregnancy.

The third objective was to assess the costs of the various models of school health services and adolescent health services in The EU and EEA for children (≥ 4 years of age) and adolescents.

In terms of exploring the costs and cost-effectiveness of SHS, only eleven countries could estimates of expenses be calculated. We were able to compare these estimates with the methods of school healthcare delivery on a population level. Large differences were found between countries regarding the costs of SHS, with Belgium spending more than \$220,000 per 1,000 pupils, while Portugal spending less than \$11,000 per 1,000 pupils. Workforce spending may be the most important driver of school health expenses. Only twelve out of the 30 participating countries reported nurse-to-pupil or doctor-to-pupil ratios; which may indicate that many countries do not have clear regulations regarding staff allocation within SHS.

The method used to estimate SHS expenses, could not be used for AHS, as no workforce estimates were available from the MOCHA questionnaires. We explored whether we were able to

extract the data from public data sources, such as the OECD or Eurostat. These could be either primary care, or preventive care expenses. Unfortunately, no data were available where we could distil the age categories to a degree that could support an estimation of costs within this sector.

CONCLUSIONS: This report presents a comprehensive and informative overview of several features and indicators of SHS and AHS in the EU and EEA. One of the most important findings on SHS is that of the 30 countries, all except two have SHS. With regard to the countries which do have SHS, no great variations seem to exist between regions in the majority of countries, so SHS in these countries seem to be equally accessible for all children and adolescents. There are also some concerns. A first major concern is the lack of policies to ensure that SHS facilities, equipment, staffing and data management systems are sufficient to enable SHS to achieve their objectives in most of the countries. The second major concern regards a lack of collaboration between SHS professionals, teachers, school administration, parents and children, and local community actors (including other health care providers).

The overall impression of AHS is that, although around half of the surveyed countries seem to have adopted policies or guidelines that secure to some extent an equal access to care for most adolescents, many regions or countries of the EU and EEA lag far behind the current standards of quality health care. A minority for instance are equipped to identify and respond to mental health emergencies and life-threatening behaviour. In addition, while many countries support the concept of confidential health care, only a small number provide guidelines to professionals as how to address adolescents' competence. The issue of inter professional care also seems not well addressed in many countries, while many adolescent bio-psychosocial health problems need such a collaborative global approach. While it is difficult to measure the impact of this gap in the delivering of excellent care to adolescents, it may be assumed that the quality of the primary care services makes a difference in terms of the health of young people.

Data on economic conditions was limited available. Estimates of costs of SHS could be calculated for eleven countries and compared to the organization of SHS. Large differences between these eleven countries regarding the costs of SHS were found. Incomplete information and various ways of financing SHS may have led to a distorted picture of the costs of SHS. In general, in countries where dedicated school doctors are available, working alone or in a team with nurses, the calculated SHS expenses are higher.

IMPLICATIONS: Although we were not able to build comprehensive models on SHS and AHS and relate these models to health outcomes, this project has resulted in a valuable overview of the different features and indicators of which SHS and AHS in different countries exist. This provides many options for countries regarding alternatives for their current system. With this overview, it is possible for countries, to see how other countries have organized parts of the SHS and AHS and which options are preferred by most of the countries.

MAIN RECOMMENDATIONS

Recommendation 1 SHS and AHS

European countries should not only invest in more SHS and AHS professionals but also in adequately trained SHS and AHS professionals to robustly address the specific needs of school aged children and adolescents:(1-5) For example, AHS professionals should be trained in

communication skills; basic skills in the field of eating disorders, substance use, or contraception and STIs should be mastered by practitioners seeing adolescents both in ambulatory settings or hospitals.

Recommendation 2 SHS

European countries should invest in collaboration between SHS and other primary care professionals. It might be hypothesized that particularly in the case of children with chronic disorders or multimorbidity, effective collaboration between SHS and primary and secondary care, but also with teachers, may offer a breadth of experience and optimize treatment, and thereby improve educational and health outcomes(6-9). Collaboration between SHS and the public health sector (and also with parents and adolescents, see recommendation 5) may lead to more integrated and coordinated care, which can result in more accessible and responsive care (8,10).

Recommendation 3 SHS

More involvement of families (both parents and children/adolescents) in SHS policy is needed. Active involvement of parents and children/adolescents in the design, planning, implementation and evaluation of services is of great importance for an efficient and effective SHS(10-12). A participatory approach involving children and adolescents focusing on the necessary conditions to reduce risk factors and enhance young people's health is seen as a useful way of optimally matching the policy to the needs and possibilities of children and adolescents (11,13).

Recommendation 4 AHS

Paediatricians and primary care providers, especially those involved in scientific organizations or in public health activities, should advocate and sensitise their colleagues and policy makers to the importance of the health of adolescents, and the fact that the adoption of good lifestyle habits during this period will profoundly affect their health for life. Addressing health-compromising behaviour, and supporting healthy habits is the responsibility, among others, of adolescents' primary care providers.(14-16)

Recommendation 5 AHS

Many European countries should develop policies and strategies which improve access to adolescents in vulnerable situations . This is particularly important in the area of mental health and sexual and reproductive health. Schools, ambulatory settings and hospitals should offer easily identified, accessible, comprehensive health care and a culturally appropriate approach, particularly given the number of migrant adolescents living in EU and EEA countries.

Recommendation 6 AHS

Finally, any good supply of services will not work effectively if young people do not obtain adequate information. The education and the health care systems should improve their communication strategies, to assist young people in understanding their rights and responsibility in the domain of health, and how and where to access to adequate care.

Several actions should take place to improve SHS and AHS, the findings as reported may help policy and decision makers in the field of paediatric primary health care and school health

services to improve the quality of health care delivered to school children and adolescents. This could in particular regard countries that showed to have a weak corpus of policies in the field of school health services (Austria, Denmark, Germany, Greece, Hungary, Malta, Slovakia, Czech and Spain) and/or in the field of adolescent health (e.g. Cyprus, Hungary Iceland, Latvia, Lithuania, Malta, Poland, Romania, and Slovakia).

1. Introduction

1.1 Background

Children are vital to Europe's present and future (17). Adult health and illness is rooted in health and wellbeing in childhood (18). The health of children in the European region has improved over the past several decades in areas such as reducing infant mortality, the incidence of infectious disease and injuries as well as adolescent pregnancy rates and abortion (19-21). However, despite the improvements in children's health, many challenges remain. For example, 10% of children suffer from chronic conditions (22) and 25% of the children are measured as overweight or obese (23) in Europe. In the few last decades, children are more likely to attend primary care with mental health problems, such as social, emotional and behavioural difficulties(24), and the prevalence of mental health problems may well be even higher in lower income countries (25). In the European Region, more than 160 000 children die each year before the age of five, 50% of them in the first month of life (26,27). The statistics are overwhelming, the more because much of the morbidity and mortality among children and young people is largely preventable (28-30).

To improve the health of children, European countries require stronger national health systems (19). All European countries provide care to children and adolescents, but they do so in various systems that have been developed and designed in different ways (31). The Horizon 2020 funded MOCHA-project 'Models of Child Health Appraised (MOCHA)' aims to identify optimal models for primary care for children and adolescents, two of these being School Health Services (SHS) and Adolescent Health Services (AHS). MOCHA will appraise how child and adolescents' health systems, used in 30 European countries, are organized (MOCHA, 2016). The extent to which SHS and AHS are organized and meet the health needs of children and adolescents is one of the purposes of Work package 3 of the MOCHA-project.

1.2 School Health Services (SHS)

SHS in this study are defined as health services provided to enrolled pupils by healthcare professional(s) and/or allied professional(s) (e.g. social workers, health visitors, counsellors, psychologists, dental hygienists), irrespective of the site of service provision; the services should be mandated by a formal arrangement between the educational institution and the provider healthcare organization (32). SHS often focuses on promoting and protecting health and wellbeing, early diagnosis, preventing and controlling of diseases of pupils. SHS can be school-based, community-based or integrated in primary care (32,33). There are different rationales for SHS. Firstly, SHS have the opportunity to reach a large group of pupils and influence their health behaviour during the early stages of life (33,34). Secondly, evidence exists that when SHS are available pupils are more likely to access health care and thus eliminate barriers to access to care (10,34,35). Thirdly, high quality SHS is related to positive health and educational outcomes (34) in disadvantaged pupils (36). Fourthly, SHS may have an important role in supporting children with chronic illnesses, such as diabetes. Integrating care needs of these children may help pupils to stay at school and prevent missing school(37). SHS might also reduce use of other health care services such as emergency care or hospitalization (34).

See Appendix 1 for a more detailed description of SHS.

1.3 Adolescent health services (AHS)

AHS comprise all services in primary care that are aimed at the specific needs of adolescents. AHS include the care of adolescent disorders, such as: 1) emergency care for unexpected and acute situations (e.g. injuries) as well as 2) chronic and rehabilitation care and 3) disease prevention and health promotion (30,38). AHS focuses on adolescents aged 10 to 18 years and can be provided in various settings such as public services, private services, schools, hospitals, occupational health practices, mobile units, pharmacies, telephone and web-based recourses. See Appendix 2 for a more detailed description of AHS.

1.4 Aims for this report

In order to find out which parts of SHS and AHS are beneficial for children's and adolescents' health, we must first identify which parts and under what circumstances services are most effective to promote health (29).

The aim of this report is threefold: 1) to provide a detailed description of structure and functioning characteristics of SHS and AHS in 30 European countries; 2) to identify models of SHS and AHS based on these (clustered) characteristics; 3) to relate – as far as possible - these models to children's' and adolescents' health outcomes.

2. Methodology

The data we collected on SHS and AHS across 30 European countries describe the structure and functioning of health systems, and related health outcomes and costs. The collection of data consisted of a number of steps. We first adapted the PHAMEU framework for primary care for adults to be able to collect data on structure and functioning of SHS and AHS (paragraph 2.1). Then we collected data on the structure and functioning of SHS and AHS across 30 European countries, using the framework in step 1. In addition, we processed the data in order to describe operational models in the 30 countries (paragraph 2.2). In the final step, we collected data on health outcomes (paragraph 2.3) to relate to the models of step 2.

2.1 Adaptation of the primary care PHAMEU framework

The PHAMEU framework (Primary Health Care Activity Monitor for Europe)(9) disentangles primary care in three essential structure and four process dimensions (Figure 1) (9).

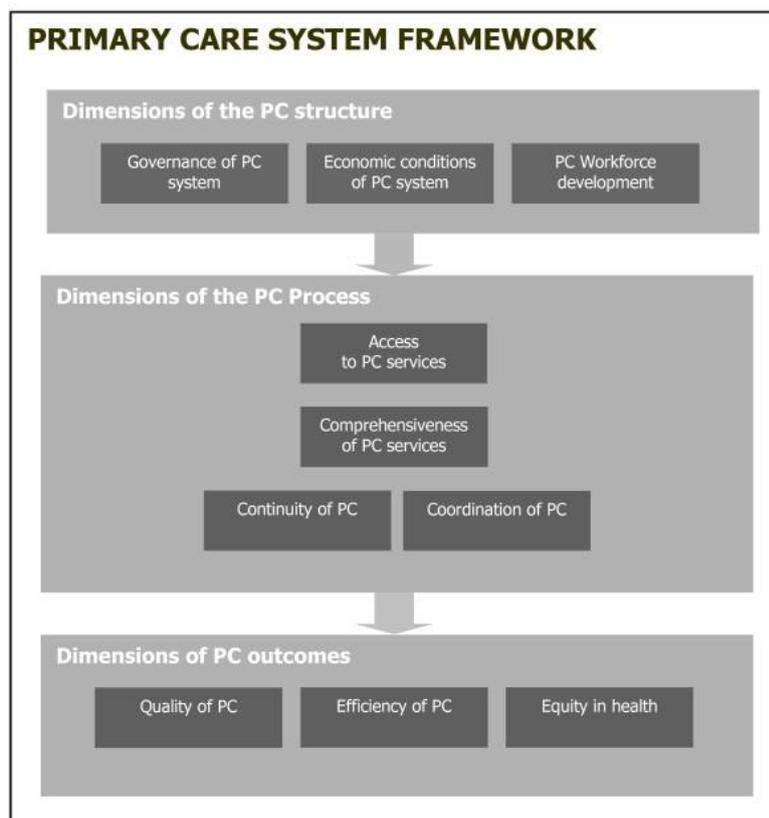


Figure 1. PHAMEU framework (9)

Whereas the PHAMEU framework focuses on primary care for the general population, the framework applicable for the MOCHA project has to focus on primary care especially on primary care for children and adolescents. In accordance with the PHAMEU framework, the organizational structure of SHS and AHS is divided into three structure dimensions: governance, economic conditions and workforce development and in four process delivery dimensions: access, continuity, coordination and comprehensiveness. Each dimension is detailed in features that are in turn specified into indicators. We have used the PHAMEU framework to build models. As first step in the exploration of the primary care for children and adolescents we focused on the structure and process dimensions.

In order to adapt the structure and process dimensions of the PHAMEU framework into a framework applicable for exploring health systems for children and adolescents, we undertook two steps: 1. we reviewed the literature on structure and process dimensions for SHS and AHS, 2. we discussed the results of step 1 with experts and asked them which dimensions, features or indicators to add to or remove from the PHAMEU-framework in order to make it more applicable for children and adolescents.

Literature search and discussion of the results with experts

Literature was searched on structure and process characteristics of SHS and AHS. This search employed the following search terms 'School health services', 'School-based health centres', 'Adolescent school health services', 'Child and adolescents friendly health care'. The outcomes of the search were then discussed during a consensus meeting with members of the MOCHA-team that had expertise on SHS and/or AHS. In case of disagreement on the formulation of the new features and/or indicators, adaptations were made directly. This led to the selection of the PHAMEU-framework with some adaptations specifically for children and adolescents. The framework and the adaptations made are described below.

The adapted PHAMEU-framework

The literature and the discussion with experts showed that the PHAMEU framework could be used to describe the structure and functioning of SHS and AHS in the 30 European countries. Some specific features and/or indicators of relevance for child and adolescent primary care however were missing. The European framework for quality standards in SHS and competence for SHS professionals as developed by the WHO (19) was used to discuss and add relevant features and indicators for SHS. For AHS, the framework of *adolescent/youth friendly health services and care* that has been jointly developed by WHO UNICEF and UNFPA was used (3,39).

WHO framework for quality standards in SHS and competence for SHS professionals

To explore the quality of SHS in the EU and EEA, we used the European framework for quality standards in SHS and competence for SHS professionals as developed by the WHO (19). We used this framework in order to identify relevant features and indicators and to formulate relevant questions for the country agents and also for a reflection on our results. The framework consists of standards that are assumed to be beneficial for the health of school aged children and adolescents.

The main standards are:

- **Standard 1** An intersectoral national or regional normative framework involving the ministries of health and education and based on children's rights is in place to advice on the content and conditions of service delivery of SHS.
- **Standard 2** SHS respect the principles, characteristics and quality dimensions of child- and adolescent-friendly health services and apply them in a manner that is appropriate to children and adolescents at all developmental stages and in all age groups. Principles of accessibility, equity and acceptability also apply to the way in which SHS engage with parents.
- **Standard 3** SHS facilities, equipment, staffing and data management systems are sufficient to enable SHS to achieve their objectives.

- **Standard 4** Collaboration between SHS, teachers, school administration, parents and children, and local community actors (including health care providers) is established and respective responsibilities are clearly defined.
- **Standard 5** SHS staff have clearly defined job descriptions, adequate competences and a commitment to achieving SHS quality standards.
- **Standard 6** A package of SHS services based on priority public health concerns is defined, supported by evidence-informed protocols and guidelines. The service package encompasses population-based approaches, including health promotion in the school setting, and services developed on an approach based on individual needs.
- **Standard 7** A data management system that facilitates the safe storage and retrieval of individual health records, monitoring of health trends, assessment of SHS quality (structure and activities) and research is in place. Additional specifications are listed below, where appropriate

Models of AHS: the use of the Adolescent Friendly Health Services and Care (AFHSC)

The available models for Adolescent friendly health care (3,39) can be used to explore the quality of AHS. The AFHSC has been jointly developed by WHO UNICEF and UNFPA some years ago. It has also been validated by young people themselves (3), who have been surveyed and asked about what, in their mind, where the main ingredients of fair and high quality health services and care. The main criteria that are mentioned by young people are the following:

- Accessibility (flexible schedule, possibility to drop in), location (public transportation), affordability (financial coverage), equity.
- Staff attitude: respectful, supportive, empathetic, trustworthy, and honest.
- Communication: developmentally appropriate, understandable, active listening, provision of information.
- Staff competency and skills, both technical and medical (health care); comprehensive and holistic approach (multiprofessional: e.g. providing curative and preventive services in the broad area of adolescent health, including mental health, substance use, sexual & reproductive health, etc.).
- Guideline-driven care: confidentiality, autonomy, privacy, continuity of care.
- Age appropriate environment: clean and teen-oriented physical space, health information, access to wifi, pamphlets and leaflets.
- Involvement in health care, participation, share-decision approach, continuity of care
- Equity and respect of adolescents' rights (CRC).
- Link with the community, networking approach, community support.

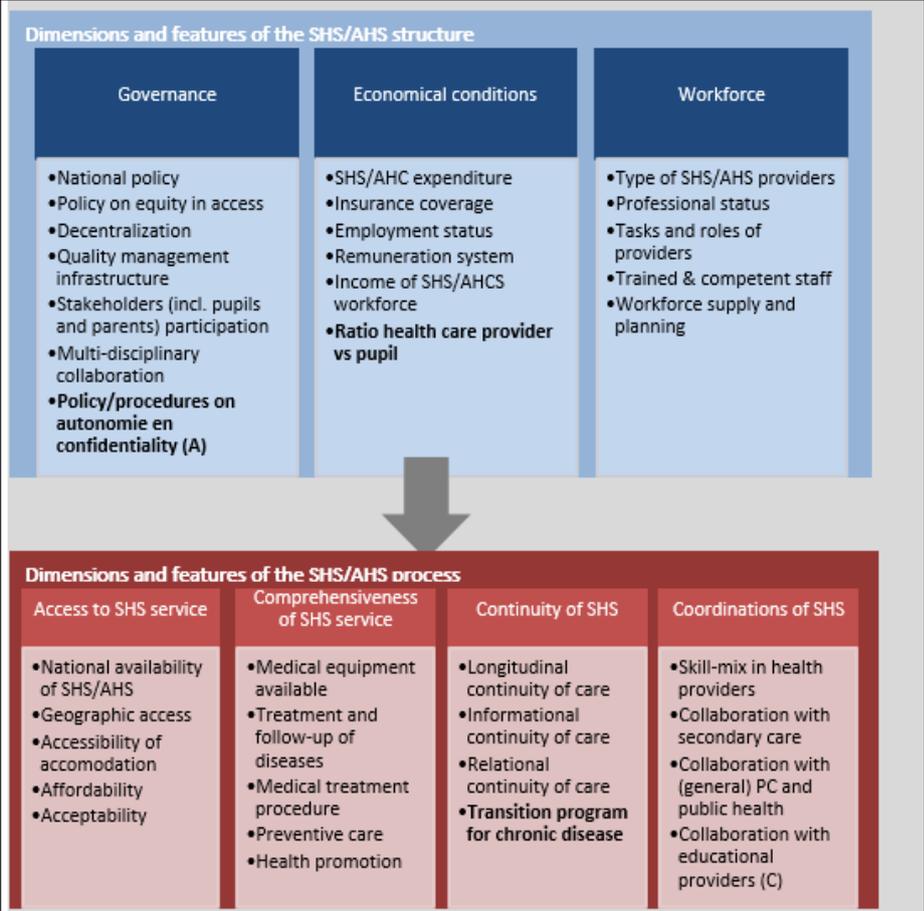
The aim of the MOCHA WP3 was to concentrate on some of the **PHAMEU framework's dimensions and features** to inquire on the extent to which the current health systems of European countries meet the health care needs of adolescents aged 10 to 18 (*table below*). The questionnaire which was sent to country agents thus focussed on some of these essential ingredients, namely

- The existence of guidelines or policies regarding friendly services
- The respect of adolescent rights
- The access of adolescents – including the most vulnerable - to appropriate health care
- The continuity of care

It also focussed on two major areas of concerns during adolescence, namely the one of mental health and self-harm and the one of sexual and reproductive health.

Adapted PHAMEU-framework

This has resulted in an adapted PHAMEU-framework for SHS and AHS. Figure 2 lists the dimensions and features of the adapted framework. Features that were added to the PHAMEU-framework are presented in bold. Indicators that were added are presented in Appendix 3 and 4.



NB. Adaptation of the PHAMEU-framework based on input of literature and experts
 (A) Features of AHS, (C) Feature of SHS
 Bold indicators are add to the PHAMEU-framework

Figure 2: The PHAMEU model adapted to School and Adolescent Health Services

Construction of a measurement tool

For each dimension the core components and the way in which these can be measured, were labelled as ‘features’ and ‘indicators, respectively. Because of the high number of indicators, it was not feasible to include all the indicators in the questionnaires. Indicators were included in the questionnaire and the analysis because of the estimated importance of these features for SHS and AHS (based on experts and on the WHO standards) and the quality of the data that was obtained.

We collected data on the most essential features and indicators in two questionnaires on SHS, which were sent at two different time points (July 2016 and April 2017). The aim of the two

questionnaires was to develop a good understanding of the most essential features and indicators of the MOCHA adapted PHAMEU framework regarding SHS (see Appendix 3).

The first questionnaire was a replication of a previously conducted European-wide survey, which was carried out by the World Health Organization in 2009 (6,40). The aim of the replication study was to understand how SHS is organized in 2016 and the differences in the two time points.

A second questionnaire was sent to the country agents, which asked additional questions that were not part of the first questionnaire. The second questionnaire asked about issues such as governance, organization and service delivery models, staffing, content of the SHS and main challenges each country faced in the organization and delivery of SHS.

Data on the most essential features and indicators of AHS was collected in a third and fourth questionnaire. Vignettes on certain tracing conditions of adolescents (sexual and reproductive health, suicidal, depression and vulnerable adolescent, i.e. skipping school and misuse of alcohol misuse) were used to get insight in the organization and delivery of AHS (see Appendix 4).

2.2 Collection of data on structure and functioning using the adapted PHAMEU-framework

We collected data on the structure and functioning of AHS and SHS across 30 European countries using questionnaires based on the adapted PHAMEU-framework. Below we describe the methods that we used for this.

Sample

We collected data on 30 European Union and European Economic Area countries (Figure 3), using informants per country as provided by the MOCHA-consortium, the so-called 'country agents'¹. Flanders and Wallonia, (Belgium) and UK Northern Ireland and UK England filled out questionnaires separately on their own request.

¹ <http://www.childhealthservicemodels.eu/partnerlisting/country-agents/>



Figure 3: Participating countries in the MOCHA surveys of SHS and AHS

Procedure and measures

All questionnaires were sent to the MOCHA country agents in 30 EU and EEA countries. Information was gathered between 2016 and 2018. Each country agent was responsible for gathering data and completing the questionnaire based on national indigenous sources and scientific literature. Answers from all countries were validated by sending a summary of results to the country agents together with a request to send corrections and additions to the researchers so that the results could be finalized.

Analysis and reporting

For the analysis and reporting of data, we first processed all data per country and per indicator to summary tables. Next, we assessed which countries had similar features, for each of the seven PHAMEU dimensions. Thirdly, we discussed which dimensions should be leading in the description of models; we based our decision on the 'leading' domain on two aspects. A first aspect regarded the degree to which the patterns of measured features could be clustered in a limited number of groups. The second aspect regarded the degree of variability of answers, with larger variability enabling an easier grouping of countries. For example, the 'leading' domain within SHS was Governance; that dimension is used to identify models of SHS.

2.3 Collection of data on health outcomes and costs

Health outcomes

The dataset that seemed most appropriate for health outcomes, the Health Behaviour School aged Children (HBSC) was used to obtain data about health outcomes. The HBSC research network is an international alliance of researchers that collaborate on the cross-national survey of school students. The HBSC collects data every four years on 11-, 13- and 15-year-old boys' and girls'

health and well-being, social environments and health behaviours. In this database information is available on many self-reported health measures, for example BMI, children's life satisfaction, mortality due to self-harm, dental hygiene, drinking behaviour, cannabis use.(41)

Costs

A happy and healthy childhood will have profound effects on the rest of a child's life (18,42). Raising children in a good and stable environment may improve lifetime health outcomes and socioeconomic status (43). A good start in life contributes to reaching an individual's full potential. Additionally, society as a whole can reap the rewards as a result of increased health and socioeconomic status, as healthcare expenses will be lower and incomes will rise. One could therefore argue, that it is not only society's duty to ensure children's health and education, because of international human rights, but also an incredible investment opportunity (44,45).

Detailed investigation about the economics of primary care for children is addressed elsewhere in the MOCHA project, in this report; we focus on the costs of SHS and AHS. Health economics studies economic factors in health, such as behaviour, efficiency and effectiveness. Health Technology Assessment (HTA) compares several interventions, such as drugs, implants, procedures or policies, and tries to find an optimal outcome; in the best case, finding a balance between outcomes and a society's willingness to pay(46,47). Healthcare is dealing with constantly rising costs across Europe and HTA is gaining importance throughout many disciplines, pharmaceuticals being a primary example (48-50). Throughout the European Union, effects of pharmaceuticals have been deemed too limited to warrant the associated costs and public awareness of these issues is rising.

HTA for comparing drugs or medical devices is generally straightforward, but when it is used for assessing long-term care, such as youth care, it is more complicated, because the health gains are more long-term and potentially difficult to quantify. Measuring quality-of-life improvements, which is one of the main pillars of HTA, is a complex exercise when dealing with children (51). For example, psychosocial effects, key in the development of children and adolescents, are not really considered in current standards for HTA effect measurements(52).

Whereas drug costs are generally listed and savings directly related to clinical trial benefits; costs in the school health sector throughout the EU and EEA are difficult to quantify and clinical trials for effect measurement are obviously lacking. Some parts are paid through healthcare budgets, others through education budgets. For example, considering the system of health accounts, which is a joint initiative of OECD, WHO and Eurostat to quantify and standardise health expenditure across nations, SHS is listed as an indicator, but unknown for all European countries (53). No studies have been published detailing the costs on a system-wide level for European countries. Studies detailing the cost-effectiveness of running a single school-based health centre are mostly focused on the United States(54-56). However, some European studies have been published where the cost-effectiveness was assessed for specific interventions within the school and adolescent health systems. Interventions such as attention deficit hyperactivity disorder education, asthma screening, sexually transmitted infections (STIs) prevention and school-based immunisation programmes have been subject to Health Technology Assessment (HTA) (57-61). Some of these interventions can be considered cost-effective, while others cannot. The MOCHA report "Short report on financing mechanisms and health outcomes" (62) describes and discusses these issues in terms of primary care for children as a whole.

For this report, the starting point in discussing the economic performance of SHS was to establish the general spending on these systems by governments on all levels. However, no data were available on countries' total spending on SHS or AHS (63). This was because the expenses were allocated on both national and local levels, across both health and education budgets, thus making them difficult to discern. SHS and AHS expenses within the health budget can be regarded as primary care, preventive care or both, adding an additional complication.

Work status (self-employed or employee) and remuneration system may have an impact on the total costs of the system, but little data is available regarding the effects on these incentives and this hold even more for SHS and AHS. Self-employed healthcare professionals may improve the productivity of the healthcare system (64-66). Yet it can also result in higher wages for self-employed health professionals, and possibly introduces overtreatment of patients when a physician's income is impacted by a fee-for-service model(67). Analysing the effects of these indicators would be interesting, but at present there are not enough data on the total SHS expenditure for clear performance indicators to be defined and analysed.

Healthcare is a highly labour-intensive sector and a major part of health expenditure is allocated to remuneration of workers in this sector. Large differences exist within the European Union: in 2014, a salaried medical specialist in Slovakia earned €26,631 on average, while a self-employed specialist in Luxembourg earned €363,655 (63). Within Europe, doctors are moving to countries where wages are higher, resulting in shortages in some lower-wages countries (68,69).

We focused on using the workforce indicators as a proxy measure for SHS costs, as we hypothesise that the majority of SHS expenditure will be allocated to workforce. Regarding AHS, no resource utilization or expenditure data were available for primary care within this specific group. The choice was therefore made to exclude AHS costs within this report, due to a lack of data. However, AHS parts that are included within the school setting are included within this report.

3. School health services

In this chapter the organization and delivery of School Health Services (SHS) will be described. In accordance with the adapted PHAMEU (Primary Health Care Activity Monitor for Europe) framework (9). The SHS will be presented based on the organizational structure (paragraph 3.1) and on the process of school health services delivery (paragraph 3.2). The organizational structure is divided in three and the process of school health delivery is divided in four dimensions. Each dimension is detailed in features and indicators (see Appendix 3). This chapter presents the results of the 30 participating MOCHA countries on the indicators that were identified by experts as most important. It presents also some challenges for the SHS system that were reported by country agents (paragraph 3.3). Paragraph 3.4 presented models for SHS; i.e. countries in which the SHS is organized less or more in similar ways. Data on health outcomes and cost-effectiveness, was – were possible – reported in paragraph 3.5.

3.1 Organizational structure SHS

In accordance with the adapted PHAMEU framework (9), the structure of SHS is divided into three dimensions: governance (3.1.1), economic conditions (3.1.2) and workforce development (3.1.3).

3.1.1 Governance

Governance is defined by Kringos et al., (2013) as a complex of features of policy development at different levels. It also focuses on supervision of delivery and monitoring of quality including equity. In Appendix 3, seven features are presented that were defined as part of governance.

National policy on SHS

The feature 'National policy on SHS' was explored by asking (1) whether countries have a national policy or framework to ensure that SHS facilities, equipment, staffing and data management systems are sufficient to enable SHS to achieve their objectives and (2) whether regional variation within countries exists. In addition to questions about SHS, country agents were also asked (3) whether their country has a national policy for schools to work towards being a Health Promoting School.²(70) The results are described below and in Table 3.1.

Two countries mentioned that they don't have SHS (Spain and Czech Republic). In about half of the other countries (n=14/28), country agents indicated that a national policy or framework exists to ensure that SHS facilities, equipment, staffing and data management systems are sufficient to enable SHS to achieve their objectives.

A majority of the countries (n=22) indicated that they have a national policy on being a Health Promoting School. Eleven countries have a national policy to enable SHS to achieve their objectives and on being a Health Promoting School but no policy. Most countries indicated no regional variations between regions and/or the policy that national regulations should be

² A Health-Promoting School, a concept promoted by the World Health Organization, is characterized as a school which is constantly strengthening its capacity to become a healthy setting for living, learning and working

followed. However, in most countries (n=16) regional variations exist, suggesting that SHS are flexible in applying rules.

According to the country agents some countries do not have a national policy on facilitating SHS nor on Health Promoting Schools (Denmark, Germany, Greece and Slovakia) and these countries reported also no great variations in SHS between regions. Germany was the only exception. As mentioned earlier, Czech do not have SHS, however this country has a codified policy on schools participating on health Promoting Schools.

National policy on equity in access

Equity is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically. *Health inequities* therefore involve more than inequality with respect to health determinants, access to the resources needed to improve and maintain health or health outcomes. They also entail a failure to avoid or overcome inequalities that infringe on fairness and human rights norms (27).

Policy on access of school drop outs

In the current study the feature 'Policy on equity in access' indicated the existence of a national policy or law on how access of children and adolescents of all ages and all groups (e.g. asylum seekers, children of illegal immigrants, homeless children) to SHS is organized. This feature was operationalized by four indicators (see Table 3.1: explored by means of questioning the country agents on the existence of a policy on school drop-outs and on how to handle vulnerable pupils (Table 3.1).

Country agents were asked (1) whether there is a national policy or guideline that encourages inter-professional meetings to discuss the issue of absenteeism, violence and disruptive behaviour or school drop-out (2) whether there are guidelines for schools to improve the integration of pupils and encourage education and, (3) whether pupils who drop out of school or otherwise vulnerable adolescents (e.g. uninsured adolescents) have the possibility to get an appointment and/or a follow-up with a doctor. The results on these features are also presented in Table 3.1.

Country agents of all responding countries (n=28) indicated that their country has some national policy on school drop-outs, with the exception of Slovakia. Fifteen out of 29 countries have a comprehensive policy on school drop-outs, by having (in most case) inter-professional meetings to discuss absenteeism and drop outs, guidelines for schools to improve integration (preventing drop out) and education of pupils, and (depending on the situation) the possibility for drop outs or vulnerable pupils to have an appointment with a doctor (Bulgaria, Czech Republic, Denmark, Estonia, Finland, Greece, Ireland, Lithuania, Malta, Poland, Portugal, Spain and UK (England)). According to the country agents, Belgium F, Iceland, Romania and Slovakia have no inter-professional meetings and no guidelines for schools to improve pupils' integration.

Decentralization

The definition of the feature 'Decentralization' is that responsibility for SHS is placed at a regional or local level instead of at a national level. Although decentralization can increase responsiveness at regional or local level, there is a risk of interregional inequities in access, financing, quality and ultimately health(71).

The feature 'Decentralization' is measured by one indicator, operationalized by questioning the country agents about the extent to which responsibilities for the development of 'content and scope', 'workforce development' and 'funding' of SHS are centralized at national level or decentralized to regional or local authorities (GOV3.2). The results are described below and presented in Table 3.2.

National, regional and local responsibilities (GOV3.2)

In the majority of the participating countries (20/30) country agents indicated that the development of the scope and content, the workforce development and the funding of SHS is a shared responsibility of the national (Ministry of Health and/or the Ministry of Education) and local authorities (local health and/or education authorities). The Ministry of Health is the most involved authority (25/29), followed by local health authorities (20/30), the Ministry of Education (16/30) and local education authorities (10/30).

Country agents in eight of the 30 responding countries indicated that the *responsibilities are centralized* at national level (Belgium-F, Belgium-W, Croatia, Cyprus, Greece, Malta, Norway and Slovakia) and in two countries (Denmark and Hungary) the *local health authorities have all the responsibilities* without involvement of national parties.

Table 3.1: Essential indicators of governance; national policy and policy on equity

Feature	GOV1 National policy			GOV2 National policy on equity in access		
Country	Policy or framework on objectives of SHS	Regional variations in SHS provision ¹	National policy Health Promoting School ²	Guidelines regarding inter-professional meetings to discuss absenteeism, drop out	Guidelines on interventions to improve school integration ³	Guidelines regarding appointment/follow-up with doctor for drop out or vulnerable pupils
Austria	No	C	Yes	No policy	ABC	Depends on situation
Belgium- F	-	D	-	No policy	A	Yes
Belgium -W	-	D	-	-	-	-
Bulgaria	Yes	C	Yes	Selected cases	ABCD	Depends on situation
Croatia	Yes	A	Yes	Most cases	AD	Yes
Cyprus	No	A	Yes	No policy	AB	No
Czech Republic	No SHS	No SHS	Yes	Most cases	ABCD	Yes
Denmark	No	A/C	No	Most cases	ABD	Yes
Estonia	No	C	Yes	Selected cases	ABD	Yes
Finland	Yes	C	No	Most cases	Other	Yes
France	Yes	C	No	Selected cases	-	Yes
Germany	No	B	No	Selected cases	-	No
Greece	No	A	No	Most cases	A	Depends on situation
Hungary	No	C	Yes	Yes	-	Yes
Iceland	Yes	A	Yes	No policy	-	Depends on situation
Ireland	Yes	C	Yes	Yes	ABD	Depends on situation
Italy	No	B	Yes	No policy	ABC	Yes
Latvia	No	C	Yes	No Policy	AB	Depends on situation
Lithuania	No	C	Yes	Most cases	ABD	Depends on situation
Luxembourg	-	A	Yes	Selected cases	A	Yes
Malta	No	A	Yes	Most cases	ABD	Depends on situation
Netherlands	Yes	C	Yes	Most cases	Other	Depends on situation
Norway	Yes	C	Yes	-	AB	Yes
Poland	Yes	A	Yes	Most cases	AB	Yes
Portugal	Yes	C	Yes	Most cases	ABD	Yes
Romania	Yes	C	No	No policy	-	Yes
Slovakia	No	A	No	No policy	-	No
Slovenia	No	C	Yes	Most cases	AB	Yes
Spain	No SHS	No SHS	-	Selected cases	ABCD	Yes
Sweden	Yes	B/C	Yes	Selected cases	AB	Yes
UK ENG	Yes	B	Yes	Most cases	ABCD	Yes
UK NI	Yes	-	Yes	-	-	-

¹ **A.** No great variations in SHS between regions/ districts/ municipalities, **B.** Regions/ districts/ municipalities have a great deal of autonomy **C.** National regulations have to be followed, but still regional variations exist, **D** Other

² A Health-Promoting School, a concept promoted by the World Health Organization, is characterized as a school which is constantly strengthening its capacity to become a healthy setting for living, learning and working (http://www.who.int/school_youth_health/gshi/hps/en/)

³ **A** Intervention of school psychologist or similar professional, **B** Link with local social services to assist parents, **C** Link with community-based educators and **D** Link with family doctor

Table 3.2: Essential indicators of governance; decentralisation and stakeholder's participation

Country	Decentralisation				Stakeholders involvement				
	Authorities responsible for SHS ¹	Contribution of parents formalized in policy	Contributions of health insurers in policy	Contributions of medical providers in policy	Policy to align content of SHS services to needs of pupils	Policy on how needs of pupils are identified ²	Regularly update of the policy on SHS	National policy on training of professionals to keep up with the changing needs of pupils	Incorporation of knowledge on emerging needs of pupils in professionals' training
Austria	MoE/LHA	No	No	Yes, partly	No	D?	No	No	No (testing)
Belgium- F	MoH/MoE/other	-	-	-	Yes	-	-	-	-
Belgium -W	MoE/other	No	-	-	Yes	-	-	-	-
Bulgaria	MoH/LHA	No	-	Yes	Yes	D	Other	Other	No
Croatia	MoH/MoE	Yes	Yes	Yes	Yes	A	Yes	Yes	No
Cyprus	MoH	No	-	Yes	-	A	No	Yes	No
Czech Republic	No SHS	-	-	-	-	-	-	-	-
Denmark	LHA	No	No	No	Yes	D	No	No	No
Estonia	MoH/LHA	No	Yes	Yes	Yes	D	No	No/Yes	Yes
Finland	MoH/MoE/LHA	No	NA	Yes	Yes	B/D	No	Yes	Yes
France	MoE/LHA/LEA	No	No	No	Partly	A/C/D	Yes	Yes	Yes
Germany	All	No	No	No	-	-	No	Yes	-
Greece	MoH/MoE	No	No	No	No	-	No	No	No
Hungary	LHA	No	No	Yes	No	D	No	No	No
Iceland	MoH/LHA	No	No	No	Yes	A/B	Yes	Yes	Yes
Ireland	MoH/LHA	-	-	-	-	-	-	-	-
Italy	All	Yes	No	No	-	A/B	No	No	Yes
Latvia	All	No	No	No	?	A	Yes	Yes	No
Lithuania	MoH/MoE/LHA	Yes	No	No	No	A	No	No	No
Luxembourg	MoH/MoE/LHA	No	No		Yes	A/B/C/D	-	-	-
Malta	MoH	No	No	No	-	A/B/C	No	No	No
Netherlands	All	No	No	Yes	Yes	A/B/C	Yes	Yes	Yes
Norway	MoH	Yes	-	Yes	Yes	A/B/C/D	Yes	Yes	Yes
Poland	MoH/LHA/LEA	No	No	Yes	-	-	No	Yes	No
Portugal	All	No	No	No	Yes	A/B/C	Yes	Yes	Yes
Romania	MoH/L(H)A	No	No	No	No	A/B	No	No	No
Slovakia	MoH	No	No	No	No	D	No	No	No
Slovenia	MoH/LHA	No	No	No	-	A	No	Yes	Yes
Spain	-	-	-	-	-	-	-	-	-
Sweden	All	Yes	-	Yes	Yes	A/C	No	No	No
UK ENG	All	Yes	No	No	Yes	A/B/C	Yes	Yes	Yes
UK NI	All	Yes	No	Yes	Yes	A/B	No	Yes	No

¹ MoH=Ministry of Health, MoE=Ministry of Education, LHA=Local Health Authority, LEA=Local Education Authority, All= all four authorities

² A epidemiological data, B other sources, C stakeholders lobbying for interventions, D others, such as student councils

Quality management infrastructure

'Quality management infrastructure' contains a number of mechanisms that need to be in place to assure adequate quality of care (71). The feature 'Quality management infrastructure' was measured by two indicators as mentioned in Table 3.3: the 'Coordination of quality management' and the 'Development of clinical guidelines/quality assurance protocol'. These indicators were measured by asking country agents whether countries have: 1) national recommendations or regulations for quality assurance, 2) standards set, e.g. by professional bodies or public health officials, 3) parties that are monitoring the adherence to these standards, 4) results of the quality achievement published in public and 5) a system that supports quality improvement in SHS. Table 3.3 contains more detailed information on the questions.

Country agents in the majority of the participating countries (17/29) indicated that they have some (Finland, France, Iceland, Ireland, Italy, Latvia, Luxembourg, Norway and UK (Northern Ireland)) or an extended system of quality assurance³ (Bulgaria, Lithuania, the Netherlands, Poland, Portugal, Romania, Sweden, UK (England)). The other twelve countries, according to the country agents, have no (Austria, Denmark, Germany, Greece, Malta, Slovenia) or a minimum level of recommendations, regulations or standards set for quality assurance related to SHS (Croatia, Cyprus, Estonia, Hungary, Slovenia and Slovakia).

Twenty countries (of the 29) have recommendations or regulations and/or other standards set for quality assurance according to their country agents. Whether achievement of the quality assurance in terms of adherence to standards test was performed by SHS themselves (n=3; Estonia, Finland and Italy) or by external inspections (n=2, Poland, Slovenia). In most of these twenty countries (n=15) a combination of these strategies was used. In most countries the results of the quality assurance are fully (n= 6) or partially (n=9) published to the public. Eighteen countries (of the 24) have a system that supports quality improvement in SHS by SHS themselves or external inspections.

Stakeholders' participation and pupils advocacy

Stakeholders' participation refers to the contribution of stakeholders, e.g. pupils, parents, health insurers and medical professionals in SHS policy development and to what extent the policy reform process is aligned to the needs of pupils. See Table 3.2.

Stakeholders and pupils' involvement

Stakeholders' participation was measured by asking the country agents to answer questions about 1) the involvement of stakeholders (parents, medical professionals, medical insurers) in *policy development*, 2) whether there is policy about aligning the content of SHS to the health and development needs of pupils, 3) how these needs are identified, 4) whether the policy is regularly updated, 5) if national policy for training of professionals to keep up with the changing needs exists and 6) whether knowledge of emerging needs is incorporated in professionals' training.

In most countries country agents indicated that it is not common to involve stakeholders in development of SHS policy. In respectively 7 (of the 28), 2 (of the 22) and 12 (of the 26) responding countries the involvement of parents, health insurers and medical providers in the

³ Countries that are labeled as having some or an extended system of quality assurance are answering respectively three or all the questions on quality assurance positive

development of SHS policy is formalized in policy or guidelines. Croatia is the only country that has a formalized policy on the involvement of all mentioned stakeholders in SHS policy development. Twelve countries answered that stakeholders are not involved in development of SHS policy at all (Denmark, France, Germany, Greece, Iceland, Latvia, Luxembourg, Malta, Portugal, Romania, Slovakia and Slovenia).

Country agents of most of the responding countries indicated that the content of SHS is aligned to the needs of pupils (n=16/22). Needs of pupils were identified by using epidemiological data (n=17), by using other data sources (n=10), by stakeholders lobbying for specific interventions (n=8) and/or by using other ways to identify needs (n=11). An example is using student councils. Fewer country agents indicated that their country has a policy on updating the content of the SHS provision to the changed needs of pupils (n=8/25), on regulations for professionals to receive training to keep up with the changing needs of pupils (n=11/27) and on ensuring that emerging trends in child and adolescents' health are incorporated in these training (16/26).

Bulgaria, Croatia, France, Iceland, Luxembourg, the Netherlands, Norway, Portugal, Slovakia, UK (England) are countries that have a more comprehensive policy on the involvement of pupils in SHS policy development. A few countries have almost no policy on aligning the needs of pupils (Austria, Greece, Hungary, Lithuania, Romania and Slovakia).

Twenty-one of the 28 country agents see the insufficient involvement of families or teachers in health promotion programs as one of the challenges faced by their countries.

Policy and procedures regarding confidentiality

Information on policy and procedures in countries on confidentiality was only gathered for AHS (see Chapter 4).

Multidisciplinary collaboration

The tasks of SHS providers are very comprehensive and require therefore mixed skills (see workforce) and collaboration and communication between different health care settings. Multidisciplinary collaboration was measured by asking the country agents to answer questions about interprofessional working and the collaboration between SHS and Primary Care (PC). The results described below are also presented in Table 3.3.

Seventeen of the 28 country agents indicated that in their country there are formal national recommendations relating to the cooperation between SHS and other forms of PC services. The way in which the cooperation is designed differs. Some countries have regulations for the exchange of information (for example France and Bulgaria); other countries have formal agreements on cooperation and division of tasks between the different services.

Almost half of the countries (n=14/28) do have formal recommendations that support inter-professional working within SHS. Some countries (n=10) have neither national recommendations for cooperation between SHS and PC, nor recommendations for inter-professional working (Austria, Cyprus, Czech Republic, Denmark, Germany, Greece, Latvia, Lithuania, Malta, Slovenia). For inter-professional meetings in cases of absenteeism and drop out see paragraph 'National policy on equity in access'.

Table 3.3: Essential indicators of governance: quality management infrastructure and multidisciplinary collaboration

Quality management infrastructure						Multidisciplinary collaboration		
Country	Recommendations/ regulation for quality assurance	Other standards sets	Achievement of quality assurance ¹	Results of quality assurance published in public	System that supports quality improvement	Recommendations to cooperation between SHS and PC	Recommendations inter- professional working	Policy or guidelines for inter- professional meeting in case of absenteeism and drop out
Austria	No	No	No	No	No	No	No	No
Belgium- F	-	-	-	-	-	-	-	No
Belgium -W	-	-	-	-	-	-	-	-
Bulgaria	Yes	Yes	AB	Yes	External	Yes	Yes	Selected cases
Croatia	No	No	AB	No	External/SHS	Yes	Yes	Most cases
Cyprus	No	Yes	NA	No	SHS	No	No	No
Czech Republic	No	-	NA	-	-	No	No	Most cases
Denmark	No	No	-	-	-	No	No	Most cases
Estonia	No	Yes	B	No	No	Yes	No	Selected cases
Finland	Yes	No	B	No	External/SHS	Yes	Yes	Most cases
France	Yes	No	BC	Partly	External/SHS	Yes	No	Selected cases
Germany	No	No	NA	-	-	No	No	Selected cases
Greece	No	No	NA	-	-	No	No	Most cases
Hungary	Yes	No	AC	Partly	No/SHS	No	Yes	No
Iceland	Yes	No	C	Partly	External	Yes	Yes	No
Ireland	Yes	-	Not yet	Partly	External	Yes	Yes	Most cases
Italy	Yes	No	B	-	No	Yes	Yes	No
Latvia	Yes	No	AB	No	No	No	No	No
Lithuania	Yes	Yes	AB	Partly	External/SHS	No	No	Most cases
Luxembourg	Yes	Yes	BC	No	External	-	-	Selected cases
Malta	No	No	BC	-	-	No	No	Most cases
Netherlands	Yes	Yes	AB	Yes/partly	SHS	Yes	Yes	Most cases
Norway	Yes	No	AB	Yes	External/SHS	Yes	Yes	-
Poland	Yes	Yes	A	Partly	External	Yes	Yes	Most cases
Portugal	Yes	Yes	BC	Yes	SHS	Yes	Yes	Most cases
Romania	Yes	Yes	ABC	Partly	External/SHS	Yes	No	No
Slovakia	No	Yes/No	NA	-	No	Yes/ No	No	No
Slovenia	No	No	A	Yes	No	No	No	Most cases
Spain	-	-	-	-	-	-	-	Selected cases
Sweden	Yes	Yes	ABC	Yes	External/SHS	Yes	Yes	-
UK ENG	Yes	Yes	ABC	Yes	External	Yes	Yes	-
UK NI	No	Yes	ABC	Partly	External/SHS	Yes	Yes	Most cases

¹ A by external inspections, B by SHS themselves, C from analysis of activity and outcome data

3.1.2 Economic conditions

Costs

Direct country-level costs of SHS are largely unknown, and as a result the associated indicators within the system of health accounts have not been completed(53,63). The MOCHA country agents were unable to answer the economics-related questions to a level of granularity to support an economic model. As a result, indirect indicators had to be used to estimate the SHS costs on a country level. The workforce indicators, as described later in this report were used to estimate the workforce costs and to approximate the country-wide SHS costs. Notably, the relevant question to the country agents concerned the required workforce (doctors and nurses) as a ratio of student numbers (Table 3.6). If the country agent could provide these data, they were used for this estimation; if they were not provided, no assumption could be made, and the country was excluded from the analysis. For the remuneration of the healthcare professionals, i.e. school nurses and doctors, primarily OECD data were used (63). If OECD data were insufficient, an internet search was used to find additional remuneration data. The total costs were calculated by summing up the multiplications of the doctor and nurse numbers and associated remuneration data.

These were the main assumptions in our SHS expenditure calculations:

- As we only had data for hospital nurses, we assumed no difference in salary between hospital nurses and school nurses.
- School doctors get paid the weighted average between GPs and specialists (if these data were available). If both GP and specialist averages were available, SHS expense estimates were calculated using both (as a low and high estimate).
- SHS covers all pupils in the country.
- Costs other than direct wages were neglected, including an employer's taxes and social contributions. Also excluded were those staff members who are not doctors or nurses. This also meant that dentistry services, included in SHS in some countries, were excluded in this model.

Figure 3.1 shows the calculations and the data sources that were used for our estimates. The exact input data and references are included in Appendix 5.

Costs were expressed in purchasing power parities, using the U.S. dollar as reference (72). Costs were used from 2014 as far as possible, if costs were from another year, they were corrected to 2014 levels using the Harmonised Index of Consumer Prices(73).

Countries were excluded from the analyses if the before mentioned references or assumptions were insufficient to make a realistic estimate. For these calculations, Microsoft Excel was used (74).

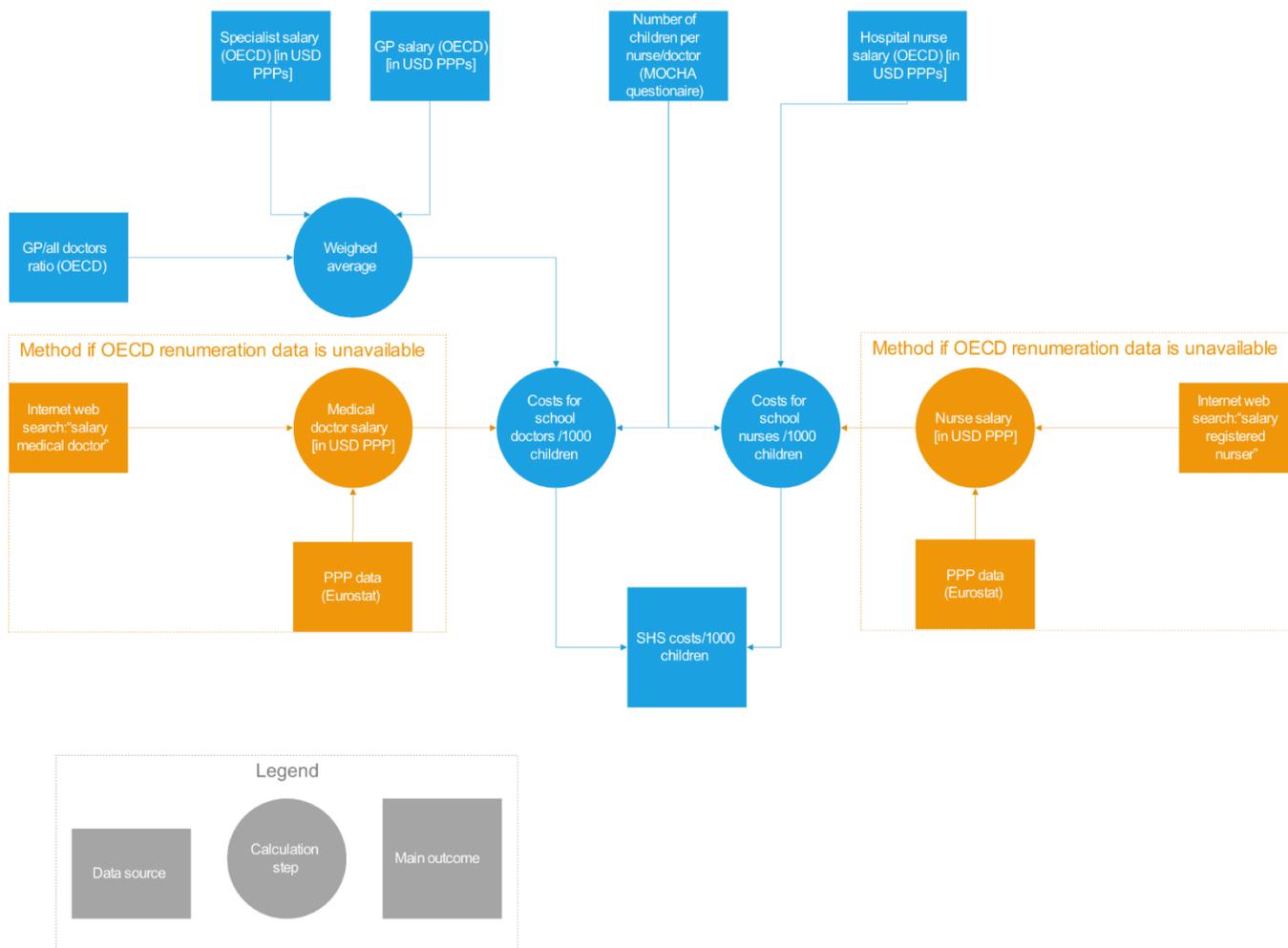


Figure 3.1: schematic drawing of calculation steps

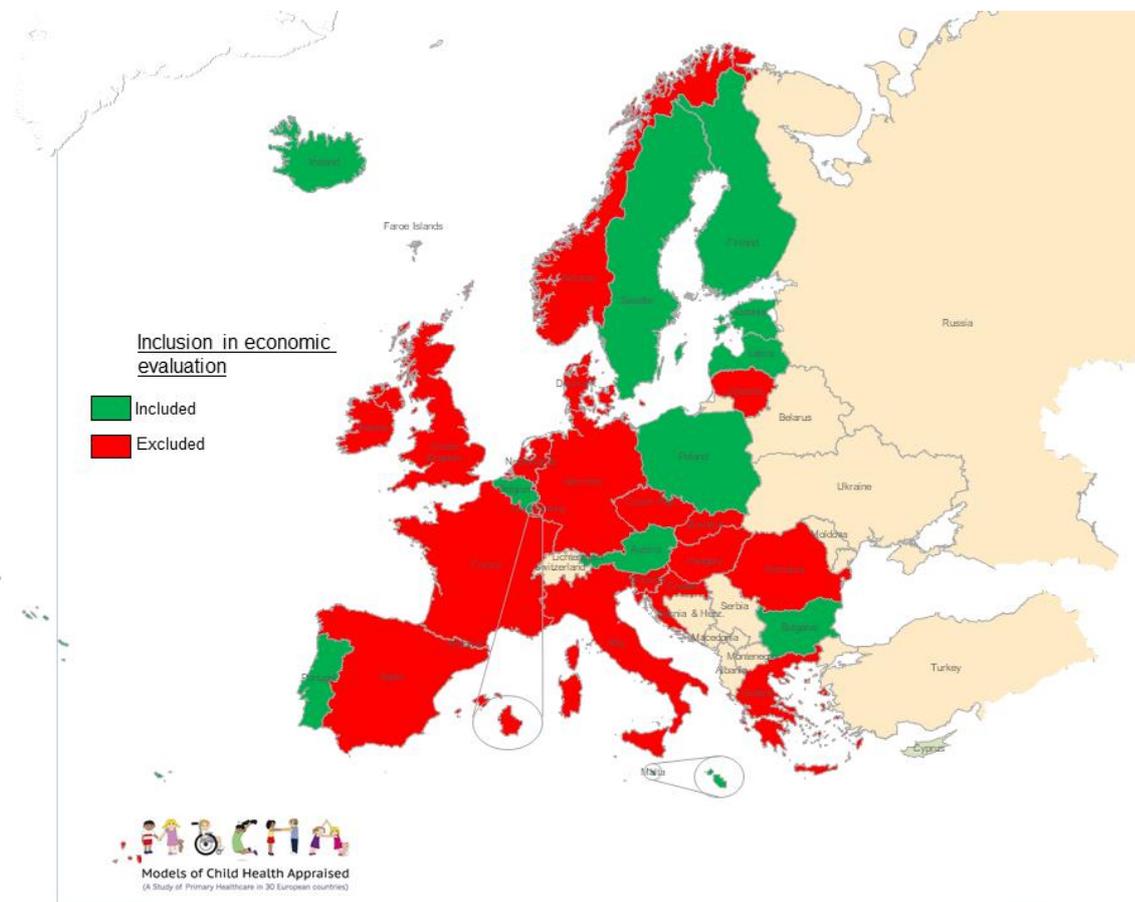


Figure 3.2: Overview of countries with available data related to costs

Results

Figure 3.2 shows the availability of data related to costs in the MOCHA countries. Countries with sufficient data are Austria, Belgium, Bulgaria, Estonia, Finland, Iceland, Latvia, Malta, Poland, Portugal and Sweden; hence these countries are included in the cost-effectiveness analyses. For Cyprus, the doctor-to-pupil and nurse-to-doctor ratios were available, but not the necessary remuneration data. For the other MOCHA countries, no workforce estimate was reported by the country agents; hence they were excluded from further analysis. Table 3.4 shows the calculated SHS/AHS expenses in decreasing order for the countries where enough data was available, per 1,000 children. This ranges from \$10,697 in Portugal to \$226,387 in Belgium, although the estimate for Belgium is very dependent on the salary estimate that is used, caused by large differences in salaries for GPs or specialists.

Table 3.4: SHS costs per 1,000 children for MOCHA countries with sufficient data

Country	SHS expenditure estimation (/1,000 pupils)* [low and high estimates^]	SHS funded as general healthcare
Belgium	\$ 226,387 [\$114,255; \$294,127]	no
Latvia	\$ 174,447	no
Sweden	\$ 148,706	no
Finland	\$ 122,184 [\$108,772 ; \$125,963]	yes
Bulgaria	\$ 110,784	no
Malta	\$ 43,460	yes
Austria	\$ 42,202	no
Estonia	\$ 39,729	yes
Iceland	\$ 29,797	yes
Poland	\$ 26,104	yes

Portugal	\$	10,697	yes
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**converted into PPPs to be able compare the expenses between countries*

^low estimate is calculated using average GP salary, high estimate using average specialist salary (OECD 2016)

Cost-effectiveness

Cost-effectiveness research usually focusses on the incremental cost-effectiveness ratio, where the added costs and effects of a new intervention are compared to current interventions already available (47). For this study, a full cost-effectiveness analysis was not feasible, as we were unable to focus on just one healthcare intervention. Instead, we looked whether the various process indicators, as described elsewhere in this report, could provide us with some information regarding the value provided by the SHS system within the various countries.

Process indicator analysis

To compare SHS expenses (Table 3.4) to the process indicators, we looked at the following:

- Governance indicators (Tables 3.1-3.3)
- SHS access indicators (Table 3.7)
- Continuity of care indicators (Table 3.8)
- Comprehensiveness of care (Table 3.9)

Workforce supply indicators were excluded, since these were used as the basis for the SHS expenses.

Only one indicator showed a relation to the expenses, this being the question whether SHS was funded as general healthcare. SHS seems to be generally cheaper if the organisation is based on the general healthcare sector, with Finland and Austria being the exceptions in this analysis, see Table 3.4 for the results.

3.1.3 Workforce

Workforce refers to the profile of SHS providers, their formal tasks, the recognition, the training and supply of SHS providers. In Appendix 3 five features and 13 indicators are presented that were defined as part of workforce. The five indicators perceived as most important for SHS were included in the questionnaires.

Type of SHS providers

The type of SHS providers was explored by asking country agents what type of professionals are part of the SHS in their country and whether the professionals are working as an individual or in a team with other health care professionals. Results are presented below and in Table 3.5.

More than half of the countries (N=23/28) have a multidisciplinary team of SHS providers that consists most often of at least a school nurse and a school doctor (n=19). Among these countries, in 16 countries also another provider is present, such as a psychologist, social worker, dentists, physical therapists and/or health care assistants. In one country (Estonia), SHS only consist of school nurses. Other countries did not have a school nurse, but only other disciplines, for example a paediatrician (Austria, Germany, Greece, Italy, Slovakia).

In sixteen countries SHS providers most often work in a team. Although SHS providers in the other nine countries are working mainly as individuals, they most often have the possibility to work close together with or to consult other health care providers.

Tasks and roles of SHS providers

Tasks and roles of SHS providers are explored by 1) tasks SHS providers have in medical care, 2) whether there is help available from mental health emergencies, 3) liaison between school health providers and teachers, parents, other health services and other community health services. Results are presented below and in Table 3.5.

In the majority of countries (n=22/29) SHS providers have tasks in direct medical care, such as 1) administration of medication, 2) provision of care in case of injuries or acute illnesses, 3) management of pupils with chronic illness and specific health care needs. The management of pupils of a chronic disease was most often (n=19) mentioned as task SHS providers performed in direct medical care. This task contains for example assessing educational and participation needs of pupils with a chronic health condition, informing the school staff, teachers and peers of these pupils and coordination of the care between treating doctors, parents, schools.

In eight countries (Finland, Iceland, Latvia, Malta, Poland, Romania, Slovenia and Sweden) SHS providers are involved in all three above-mentioned tasks. Seven countries (Cyprus, Denmark, Germany, Greece, Italy, the Netherlands and Norway) did not indicate an involvement of SHS providers in the described medical tasks. Providers in four countries (France, Hungary, Ireland, and United Kingdom) have other tasks in direct medical care, such as providing vaccinations, minor analgesic drugs, and the morning after pill, renewal of contraceptives, aptitude test and division in physical education into subgroups based on physical eligibility.

In six of the 26 countries (Austria, Bulgaria, Estonia, Finland, Luxembourg, Portugal) there is onsite or specialist help available in schools for mental health emergencies via the school nurse. In six countries help is (also) available for a few hours by cooperation with mental health

centres, prevention centres or pedagogical and social services pupils can be referred to. In the fifteen other countries mental health emergencies are not available.

In all countries school health providers are functioning as a liaison between pupils and teachers, families/carers, community and other health care providers (e.g. family doctors, community paediatricians, community dentists, dieticians, physiotherapists, public health doctors, and social workers).

Professional status

The recognition and responsibilities of SHS providers should be identified by the existence of a clearly defined and written job description that is based on SHS high quality standards (19). In more than half of the countries (n=21/28) SHS providers have such kind of a written job description (Table 3.5).

Trained and competent staff

Whether SHS providers are trained and competent is operationalized by asking country agents whether SHS providers: 1) are adequately trained, 2) are trained in emergency care, 3) need specialization and 4) have access to supervision on their performance. Results are described below and in Table 3.5.

Training of SHS providers

Country agents declared that school health providers are adequately (n=11/28) or somewhat (n=15/28) trained. Only in Malta and Slovakia SHS providers are not trained.

In most countries the teachers and/or nurses are trained in providing emergency care, i.e. 1) benign injuries, 2) loss of consciousness and 3) emergency care. In 21 of the 23 countries, SHS providers are trained in all three (n=15) or in one or two domains or care (n=6). In four/five countries (Denmark, France, the Netherlands and Slovenia) SHS does not provide emergency care.

In 16 of the 29 countries specialization in school health is needed for employment in SHS. In Belgium-F and Belgium-W there was only specialization needed for school doctors. In Cyprus, Poland and Sweden specialization was only needed for school nurses. In thirteen countries it was mentioned that specialization is not needed for employment.

In 13 of the 28 countries, SHS staff have access to supervision and feedback on their performance and two countries stated that it differs between schools (Latvia and Norway). Supervision and feedback in Bulgaria for example is based on the annual reports of SHS which is provided to regional inspections and on which the performance of SHS providers might be improved. In Estonia a nurses' supervision and assessment system was created. In the Netherlands continuous medical education and supervision is an obligatory part of the accreditations of SHS providers and an accreditation for nurses is in progress.

Table 3.5: Essential indicators of workforce

Country	Type of SHS providers		Tasks and role of SHS providers in medical care and as liaison			Professional status	Trained and competent staff			
	SHS providers ¹	Working in a team	Tasks in medical care ²	Availability of mental health emergencies ³	Liaison role is clearly defined ⁴	Clearly defined jobs	Adequate, somewhat or not trained	Training in emergency care ⁵	Specialization SHS is needed for employment	Access to supervision and feedback on performance
Austria	B/C/D/E/H	No	Acute/chronic	B/C/D	t/p/c	Partly	Somewhat	1/2/3/4	No	No
Belgium- F	A/B/C/D	Yes	Chronic	No	t/p	-	Somewhat	-	Yes ⁶	-
Belgium -W	A/B/C/D	Yes	Chronic	-	t/p	-	Somewhat	-	Yes ⁶	-
Bulgaria	A/B	Yes	Acute	Onsite help	No	Yes	Somewhat	-	No	Yes
Croatia	A/B/D	Yes	Chronic	No	t/p/h/c	Yes	Adequate	1/2/3	Yes	Yes
Cyprus	A/B/D	Yes	No	C	No	Yes	Adequate	1/3	Yes ⁷	No
Czech R	-	-	-	-	-	-	-	-	-	-
Denmark	A/B/C/E/F	No	No	-	p	No	Adequate	NA	Yes	No
Estonia	A	No	Chronic	Onsite help	h	No	Somewhat	1/2/3	No	No
Finland	A/B/D	Yes	All tasks	B	t/p/h/c	Yes	Somewhat	1/2/3	Yes	Yes
France	A/B/G	Yes	Med/chronic	-	t/p/h/c	Yes	Adequate	NA	Yes	Yes
Germany	E/H	No	No	No	No	No	Somewhat	-	No	No
Greece	H	-	No	C	-	Yes	-	1/2/3	No	No
Hungary	A/B/E	NA	Acute/chronic	No	h	Yes	Somewhat	1/2/3	Yes	No
Iceland	A/B	No	All tasks	No	t/p/h	Yes	Somewhat	1/2/3	No	Yes
Ireland	A/B/E	Yes	Acute (only dentist)	No	t/p/h	Yes	Somewhat	3	No	Yes
Italy	H	Yes	No	C/D	t/p/h/c	No	Adequate	3	No	No
Latvia	A/B	No	All tasks	No	No	No	Somewhat	1/2/3/4	Yes	Differs
Lithuania	A/H	Yes	Acute/chronic	No	t/h/c	No	Somewhat	1/2/3	No	No
Luxembourg	A/B/D/E	NA	Chronic	Onsite help	p/h	Yes	Somewhat	Yes	No	No
Malta	A/B/H	Yes	All tasks	No	t/p/h	Yes	Not	1/2/3	No	Yes
Netherlands	A/B/G	Yes	No	No	t/p/h/c	Yes	Adequate	NA	Yes	Yes

Country	Type of SHS providers		Tasks and role of SHS providers in medical care and as liaison			Professional status	Trained and competent staff			
	SHS providers ¹	Working in a team	Tasks in medical care ²	Availability of mental health emergencies ³	Liaison role is clearly defined ⁴	Clearly defined jobs	Adequate, somewhat or not trained	Training in emergency care ⁵	Specialization SHS is needed for employment	Access to supervision and feedback on performance
Norway	A/B/C/F	No	No	No	t/p/h/c	Yes	Adequate	1/2/3	Yes	Differs
Poland	A/E/H	Yes	All tasks	No	t/p/h/c	Yes	Adequate	1/2/3	Yes ⁷	Yes
Portugal	NA	Yes	Chronic	Onsite help	t/p/h/c	Yes	Somewhat	1/2/3	No	Yes
Romania	A/B/E	No	All tasks	No	p/h	Yes	Somewhat	1/2/3	Yes	No
Slovakia	H	NA	Med/acute	No	No	No	Not	4/ 5	No	No
Slovenia	A/B/C/D/E	Yes	All tasks	C	t/p/h/c	Yes	Adequate	No	Yes	Yes
Spain	-	-	-	C	-	-	-	-	-	-
Sweden	A/B/C/D	No	All tasks	-	t	Yes	Adequate	1/2/3	Yes ⁷	No
UK ENG	-	Yes	Chronic	No	-	Yes	Adequate	3	Yes	Yes
UK NI	-	-	-	-	-	Yes	-	3	-	Yes

¹ **A** School nurse, **B** School doctor, **C** Psychologist, **D** Social Worker, **E** Dentist, **F** Physical therapist, **G** Healthcare assistant and **H** Other

² **Med** Administration of medication, **Acute** Provision of care in case of injury or acute illnesses, **Chronic** Management of pupils with chronic illnesses, **All** task in all mentioned options, **No** SHS is not involved in direct medical care

³ **Onsite help** There is onsite help in schools, with immediate referral from the school nurse, **B** There is specialist help available onsite the school, via the school nurse, **C** Help is available within a few hours, **No** Not equipped

⁴ **t** is Liaises with teachers, **p** Liaises with parents, **h** Liaises with other health services, **c** Liaises with other community health services, **No** no clearly defined roles

⁵ **1** Benign injuries, **2** Loss of consciousness, **3** emergency care, **4** other, **NA** SHS doesn't provide emergency care

⁶ Only for school doctors

⁷ Only for school nurse

Workforce supply and planning

Workforce supply and planning was operationalized by asking for the nurse- and doctor-to-pupil ratio (Table 3.6).

Ratio of SHS providers and students

Twenty country agents did not fill in this question but indicated that they were not being able to give information on the ratio of SHS provider-to-pupil or mentioned that time in school per health care provider depends on size of the school. The nurse-to-pupil ratio in countries that did report this information differed between countries, one nurse per 100-3500 pupils (n=8) and one doctor on 1100-7500 pupils (n=5).

Countries that have a corresponding nurse to pupil ratio (ratio between 600 and 800) were: Bulgaria (1:800), Estonia (1:600), Finland (1:600), Iceland (1:750) and Poland (1:880-1100). Malta and Cyprus had higher nurse-pupil ratios (resp. 1:3500 and 1:2000) and Latvia a much lower nurse-pupil ratio (1: 100).

Slovenia assess the situation with the staffing as adequate, 22 countries mentioned shortage in some areas/schools and six countries mentioned severe shortage of staffing of SHS (Luxembourg, Malta, Norway, Romania, Slovakia and UK (England)). In some countries, for example Romania, especially in rural areas deficits exists.

Table 3.6: Essential indicators of workforce, workforce supply and planning

Workforce supply and planning			
Country	Nurse-to-pupil ratio ¹	Doctor-to-pupil ratio	Staffing of SHS adequate ²
Austria		1:500-800	Some shortage
Belgium- F	-	1:1100	Some shortage
Belgium -W	-	-	Some shortage
Bulgaria	1:800	1:2000	Some shortage
Croatia	-	-	Some shortage
Cyprus	1:2000 1:1500	1:7500 1:4500	Some shortage
Czech Republic	-	-	Some shortage
Denmark	-	-	Some shortage
Estonia	1:600 1:600	-	Some shortage
Finland	1:600 1:600	1:2100 1:2100	Some shortage
France	-	-	Some shortage
Germany	-	-	Some shortage
Greece	-	-	-
Hungary	-	-	Some shortage
Iceland	1:1750 1:500	-	Some shortage
Ireland	-	-	Some shortage
Italy	-	-	Some shortage
Latvia	1:100 1:100	-	Some shortage
Lithuania	-	-	Some shortage
Luxembourg	-	-	Severe shortage
Malta	1:3500 1:750	1:7000 1:1000	Severe shortage
Netherlands	-	-	Some shortage
Norway	-	-	Severe shortage
Poland	1:880-1100 1:880-1100	-	Some shortage
Portugal	30 hours a week per 3500 students	-	Some shortage
Romania	-	-	Severe shortage
Slovakia	-	-	Severe shortage
Slovenia	-	-	Adequate
Spain	-	-	-
Sweden	40 hours : 400 pupils	400 hours: 4000 pupils	Some shortage
UK ENG	-	-	Severe shortage
UK NI	-	-	-

¹ Red is currently and Blue is suggested

² Shortage might be in some areas or some schools

3.2 Process of SHS delivery

The dimensions that focus on the delivery of SHS are access, continuity, coordination and comprehensiveness. This chapter provides an overview of the answers of the country agents on these dimensions.

3.2.1 Access

Access refers to the ease with which school children have access to SHS. The accessibility of SHS for children and adolescents is determined by five features and 26 indicators (Appendix 3).

Indicators of which two features have been asked: 1) availability of workforce for SHS, such as time SHS providers spent on SHS, pupils' opportunity for individual contact with SHS providers and presence of SHS in or outside school and 2) geographic access (shortage of SHS personnel).

Availability of SHS providers

Available SHS workforce

The country agents reported that the time spent in school per school health professional varied from once a year to fulltime and varied per type of provider (See Table 3.7). School nurse and school doctor spent the most time as SHS providers in schools.

In fifteen of the 24 countries the *school nurse* is full time (most often in schools with >800 pupils), part time, regularly (once/twice a week) or periodically (once/twice a month) available. In Denmark, Estonia, Iceland, Lithuania and Sweden the availability of school nurses depends on number of pupils per school. In Austria, Germany, Greece, Slovenia and Slovakia schools do not have school nurses, but other health care providers such as school doctors, paediatricians, health care assistants and/or other health care providers, such as dental health providers, school psychologists and social workers.

In ten countries a *school doctor* is fulltime, part time or regularly (once/twice a week) available. In other countries a school doctor comes periodically (once/twice a month), once a year or on demand to schools (Austria, Belgium Flanders/Belgium Wallonia and Iceland, Ireland, Malta and Portugal and Slovenia). Fifteen countries have also *other health care providers*, such as a dentist, school psychologist, social worker, or to a lesser extent a speech/language specialist or health care assistant, regularly, periodically or on demand available that spent time in SHS. Some countries being unable to answer this question or did not give an adequate answer (Greece, France, Italy, Luxemburg and UK (Northern Ireland)).

Pupils in countries that have SHS have the opportunity for individual contact with school health care providers from school entry to graduation (Table 3.7). In nineteen of the 29 countries pupils can contact SHS as often they think is needed, sometimes combined with a regulated scheme or set contact opportunities. In eight countries this was 3-9 times and in two countries (Austria, Estonia) this was once a year.

Presence of SHS staff in schools

SHS personnel don't always have "in school" facilities. How SHS provision is organized differs greatly within the 30 participating countries. SHS can be school based, a distinct structure in the health system, or offered by providers in primary care. In most countries SHS provision is a mixture of structures (Table 3.7). In only four countries (Denmark, Iceland, Norway and

Sweden) SHS is totally school-based and only in Greece and Slovakia SHS is offered in primary health care facilities.

In 22 countries school health personnel have a dedicated room available in the school. Having a school-based SHS does not always mean that a room is available (Estonia, France). Explanation for not having a dedicated room available is that schools are too small, it is not mandatory by law or it is common practice to use the rooms of the local health services.

(Geographic) access and acceptability of SHS

Access and acceptability of SHS are other important features. To examine geographic access country agents were asked whether there is a shortage in the staffing of SHS. In all countries, there is either a shortage of staff in some areas and/or schools (n=22 of 29) or a severe shortage (n=6, Table 3.7). In Slovenia country agents reported an adequate staff.

Table 3.7: Essential indicators of access of SHS

National availability of SHS						Geographic access
Country	Healthcare providers ¹	Time SHS providers spent in school	Possibility of individual contact from school entry to graduation	Organization of SHS provision ²	Room available for use by school health personnel	Shortage of SHS staff
Austria	Doctor Other	Fulltime bigger schools/regularly to once a year Once a year	Once a year	Distinct	Partly	some
Belgium- F	Nurse/other Doctor	Once/twice a week On demand	As often as needed/3-9 times	Distinct	Yes and No	Some
Belgium -W	Nurse Doctor/other	Once/twice a week On demand	As often as needed/3-9 times	Distinct	Yes and No	Some
Bulgaria	Nurse Doctor	Once/twice a week Depends on no pupils	As often as needed	School based/PC	Yes	Some
Croatia	Nurse/doctor	Once/twice a week	As often as needed	Distinct	No	Some
Cyprus	Nurse/doctor/other	Once/twice a week	3-9 times	Distinct	Yes	Some
Czech Republic	No SHS	No SHS	No SHS	No SHS	No SHS	Some
Denmark	Nurse/doctor/other	Depends on no pupils	As often as needed/3-9 times	School based	Yes	Some
Estonia	Nurse	Depends on no pupils	Once a year	School based/PC	No	Some
Finland	Nurse/doctor Other	Part time	As often as needed/once a year	School based/PC	Yes	Some
France	Nurse Other	-	As often as needed/3 times or less	School based/distinct	No	Some
Germany	Doctor Other	Part time	3-9 times	Distinct/PC	Yes	Some
Greece	Other	-	3-9 times	PC	No	-
Hungary	Nurse/doctor	Once/twice a week	3-9 times	School based/PC	Yes	Some
Iceland	Nurse Doctor	Depends on no pupils (> 800) Once a year	As often as needed	School based	Yes	Some
Ireland	Nurse/doctor	Once/twice a month	3-9 times	Distinct/PC	Yes	Some
Italy	Doctor/other	-	3-9 times	Distinct/PC	No	Some
Latvia	Nurse/other Doctor	Fulltime Part time	As often as needed	School based/PC	Yes	Some
Lithuania	Nurse	Depends on no pupils	As often as needed	School based/PC	Yes	Some
Luxembourg	Nurse/medical doctor/social worker	-	As often as needed/3-9 times	Distinct/PC	Yes	Severe
Malta	Nurse/doctor/other	Once/twice a month	3-9 times	Distinct/PC	Yes	Severe
Netherlands	Nurse, Doctor Other	Time spent differ	As often as needed	Distinct	No	Some
Norway	Nurse/doctor Other	Part time	3-9 times	School based	Yes	Severe
Poland	Nurse Other	Fulltime (>800), Part time (>400), once/twice a week (<400)	As often as needed/3-9 times	School based/PC	Yes	Some

National availability of SHS						Geographic access
Portugal	Nurse Doctor/other	Once/twice a week Once/twice a month	As often as needed/at least 5 times/year	Distinct/PC	Yes	Some
Romania	Nurse/doctor/some dentist	Full/part time depends on no pupils	As often as needed	School based/PC	Yes	Some (severe in rural and small cities)
Slovakia	Doctor/other	Full or part time/on demand	As often as needed	PC	No	Severe
Slovenia	Doctor/other	Periodically	As often as needed	Distinct	Yes	Severe
Spain	No SHS	No SHS	No SHS	No SHS	No SHS	-
Sweden	Nurse/doctor/other	Depends on no pupils	As often as needed	School based	Yes	Some
UK ENG	NA	-	As often as needed	School based/distinct/PC	Yes	Adequate
UK NI	-	-	-	-	-	-

¹ **Nurse** School nurse, **Doctor** School doctor, **Other** Other health care providers, such as health care assistant

² **School based** SHS is based in schools, **Distinct** SHS is a distinct structure, SHS personnel not based in schools, **PC** SHS offered by primary health care providers

.2.2 Continuity of care

Continuity of care for SHS comprises in particular the continuity of health information. Information continuity is the process by which information relevant to pupils' care is available for all involved providers. School health care providers can be helped by a policy of record keeping of pupils' general health and by information sharing between school health service professional, educational providers and primary care health providers. Continuity of care is operationalized in four features and 11 indicators (Appendix 3). An overview of the results of informational continuity is presented in Table 3.8.

Informational continuity

Medical record keeping

In most countries (n=18/29) according to policy and practice the schools keep and update information concerning the health status of pupils. In the other 11 countries record keeping of pupil's general health is done by providers who are not part of SHS, for example in case of children with a chronic illness. Ten of the 26 countries stated that they have policy on easy access to health records and on promotion of communication. In some countries (4/18), only SHS personnel have access to the information, school personnel (teachers) cannot; this was the case in Austria, Slovakia, France and Estonia.

In eighteen of the 28 countries there is no policy and/or it is up to the parents to advise teachers and other school staff members (not SHS) on children with life-affecting health issues such as diabetes, haemophilia, asthma or epilepsy and to manage the child in school. School staff members most often go to school nurse or school doctor (N=17/29) and/or parents (N=21/29) to report general health concerns about individual pupils. An overview of the results of informational continuity is presented in Table 3.8.

Table 3.8: Essential indicators of continuity of care in SHS

Country	Policy for schools to keep and update information on pupils	Policy on easy access to health records	Policy on advising teachers and other school staff members of children with life-affecting health issues ¹	To whom would school staff report general health concerns
Austria	Yes	No	No policy	School doctor Parents or guardian
Belgium- F	No	-	-	-
Belgium -W	No	-	-	-
Bulgaria	Yes	No	SHS/PC	School nurse/doctor/PC provider
Croatia	No	Yes	Parents/SHS/PC/no policy	School doctor/parent or guardian/other agencies
Cyprus	Yes	No	Parents/no policy	School nurse/doctor
Czech Republic	-	-	Parents	Parent or guardian only/other agencies
Denmark	Yes	No	SHS	School nurse
Estonia	Yes	No	Parents/SHS	Parent or guardian
Finland	Yes	Yes	No policy	School nurse/doctor
France	Yes	Yes	Primary care	School nurse/doctor/ parent or guardian/other agencies
Germany	No	No	Parents/no policy	Parent or guardian/other agencies
Greece	Yes	No	Parents/no policy	School nurse
Hungary	Yes	No	No policy	School nurse/doctor / parent or guardian/ other agencies
Iceland	Yes	Yes	SHS	School nurse
Ireland	No	-	Parents	Parent or guardian mostly/other agencies
Italy	No	No	PC	PC provider/parent or guardian
Latvia	No	No	Parents/no policy	Parent or guardian
Lithuania	Yes	No	Parents/SHS/no policy	Parent or guardian/other agencies
Luxembourg	No	No	SHS	SHS/parent or guardian
Malta	Yes	No	Parents/SHS/no policy	School nurse/doctor/ parent or guardian
Netherlands	No	Yes	Parents/no policy	School nurse/doctor/ parent or guardian/other agencies
Norway	Yes	Yes	Parents/no policy	School nurse/doctor/PC provider/parent or guardian/other agencies
Poland	Yes	Yes	Parents	School nurse
Portugal	No	Yes	Parents/SHS	School nurse/ doctor/parent or guardian
Romania	No	No	No policy	School nurse/ doctor/parent or guardian
Slovakia	Yes	No	Parents	PC provider/ other agencies
Slovenia	Yes	No	Parents/no policy	Parent or guardian
Spain	-	-	Parents	Parent or guardian /other agencies
Sweden	Yes	Yes	Parents	Parent or guardian
UK ENG	Yes	Yes	No policy	School nurse/PC provider/ parent or guardian/other agencies
UK NI	-	-	-	-

¹ **Parents** It is up to the parent, **PC** Primary care providers, **SHS** SHS providers, advised if necessary by PC **No policy**

3.2.3 Coordination of care

The coordination of care is reflected by the policy and practice on coordination and collaboration within SHS teams and between SHS and primary or public care and between SHS and school staff. Coordination of care is operationalized for SHS in four features and 6 indicators. In this report only the features skills of SHS providers is mentioned.

Skills of SHS providers

SHS providers work alone or in multi-disciplinary teams. Most countries have multiple types of SHS providers (see Workforce). Only in Estonia, Lithuania and Greece SHS consist of one type of SHS profession, most often a school nurse.

3.2.4 Comprehensiveness

Comprehensiveness represents the range of services available in SHS and is operationalized in five features and 15 indicators (Table 3.9). The next session will describe the features: 1) medical treatment procedure, 2) preventive care and 3) health promotion. See Table 3.9 for an overview of the results.

Medical treatment procedure

In eight of the 29 participating countries, SHS-providers are not involved in direct medical care. In the other countries the direct medical care tasks of the SHS differ. In 18 countries they are involved in the *management of pupils with chronic illnesses*, in 13 countries SHS provide *care in case of injury or acute illness* and in ten countries SHS providers are involved in *administration of medication*.

Preventive care

In most countries (n=26 of the 28 countries) multiple screenings (including in all cases height and weight) are part of SHS. Countries in which standard screenings are part of SHS have visual acuity (n=26), hearing tests (n=22) and dental screenings (n=21) and blood pressure measurements (n=16) as part of the screening schedules. Only Austria, Croatia, the Netherlands and the UK (England) screen for sexually transmitted infections (STI) as part of SHS tasks (on demand). These are carried out either by the school-based health personnel or in conjunction with primary care providers. In Italy and Greece, only screening on visual acuity is performed. In addition to these standard screening topics, 20 countries indicate they perform other regular screenings. For example, elaborate medical examinations or screenings for language skills, vaccination status, parental concerns, psychological development and sexual development. See Table 3.9.

Disease prevention performed by SHS in participating countries are vaccinations (N=22/28), referrals for health conditions (n=22), infection control (n=19), surveillance of school's hygiene conditions (n=18) and emergencies handling (n=15). Some countries perform tasks on disease prevention. In Germany and Slovakia for example, only referrals for health conditions and emergency handling are performed (in some regions), and in Ireland and Malta, only vaccinations and referral for health conditions are performed respectively.

It was difficult to indicate an accurate estimate of how the time of school health personnel is divided between the different activities they are responsible for. A rough estimate is that most of the time is spent on screenings, vaccinations, group/classroom health promotion and individual counselling. However, most countries answered that they were unable to give an

accurate figure. When they were asked about what proportion of school health personnel time should be assigned to what activity, answers were more readily given. In an ideal situation, screenings were still assigned the most time; but other activities that all seem equally as important, are individual counselling, group/classroom health promotion, working with teachers, parents and the community and vaccinations. Direct medical care, hygiene control, research and other activities are assigned less time in an ideal situation.

Mental health (with the exception of Greece, Malta and Poland) and behavioural problems (with the exception of Denmark, Greece, Hungary, Lithuania, Norway and Portugal) are also main priority needs of pupils. Coping with stress, anxiety- and learning disorders, bullying, depression, social and emotional learning and self-esteem are all mentioned as examples of mental health topics for pupils covered by SHS. In terms of behavioural problems, the main topic is aggression and abuse. Next to these general categories, 20 countries indicated that there are also other priority health and development needs among their pupils, such as development disorders, physical development in general, reproductive and sexual health, immunisations, language development, environmental education and the addressing of socioeconomic problems.

Health promotion

The priority health and development needs of pupils are generally the same in all countries. In all countries (n=29) lifestyle related issues are priority needs. They encompass for example physical activity, healthy eating, obesity, alcohol and drug consumption and smoking.

Health promotion activities and developing and implementing specific programs on health-related issues are also part of SHS in all 28 countries. Group health promotion including sex education (n=26), individual counselling/health dialogues (n=24), supporting teachers (n=22) and promoting a healthy school environment (n=22) are being the foremost activities of SHS. In twelve countries health promotion also include supporting parenting skills. Eight countries reported health promotion activities in the category “other”, these are for example intersectoral cooperation with the welfare team or Non-Governmental Organizations (NGO’s) that are present in that country, first aid education, organising healthy nutrition in schools, prescribing contraception to girls and prevention programs for smoking, alcohol and drugs abuse. Countries find it difficult to indicate how much time is spent on different activities and whether this matches the ideal situation.

Table 3.9: Essential indicators of comprehensiveness of care in SHS

Country	Direct medical care *			Screening ^{1 2}						Disease prevention and management activities ³					Priority health and development needs ⁵			Health promotion activities and specific programs ⁶						
	Chronic care	Acute care	Medication	STI's	Dental screening	Blood pressure	Hearing testing	Visual acuity	Height & weight	Emergency hygiene	Surveillance of schools	Infection control	Infectious	Referrals	Vaccinations	Life-style	Mental health	Behavioral problem	Group health prom. incl. sex	Individual school environment	promotion of healthy school	Support teacher	Parenting	Group health
Austria	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Belgium- F	○	✖	✖		○		○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○
Belgium- W	○	✖	✖		○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○
Bulgaria		○																						
Croatia	○	✖	✖	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cyprus	✖	✖	✖		○	○		○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○
Czech R.																								
Denmark	✖	✖	✖		○	○	○	○	○		○		○		○	○		○	○	○	○	○		
Estonia	○					○	○	○	○		○		○	○	○	○	○	○	○	○	○	○		
Finland	○	○	○		○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○		
France	○	○	○		○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○		
Germany	✖	✖	✖		○		○	○	○		○		○		○	○		○	○	○	○	○		
Greece	✖	✖	✖																					
Hungary	○	○	○		○	○	○	○	○		○	○	○	○	○	○		○	○	○	○		○	
Iceland	○	○	○		○		○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○
Ireland	✖	○	✖		○		○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	
Italy	✖	✖	✖				○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	
Latvia	○	○	○		○	○	○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	
Lithuania	○	○			○	○	○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	
Luxembourg	○				○	○	○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	
Malta ¹	✖	✖	✖				○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	○
Netherlands	✖	✖	✖	○ ¹	○ ¹		○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	○
Norway	✖	✖	✖				○	○	○		○		○		○	○		○	○	○	○	○	○	○
Poland	○	○	○		○	○	○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	○
Portugal	○	✖	✖		○		○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	○
Romania	○	○	○		○	○	○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	○
Slovakia		○	○		○	○ ²	○	○	○		○		○		○	○		○	○	○	○	○	○	○
Slovenia	○	○	○		○	○	○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	○
Spain																								
Sweden	○	○	○				○	○	○		○		○	○	○	○		○	○	○	○	○	○	○
UK ENG	○	✖	✖	○			○	○	○		○	○	○	○	○	○		○	○	○	○	○	○	○
UK NI																								

✖ not involved in direct medical care 1 On demand 2 >15 years

¹ SHS is not the main provider

3.3 Challenges

Challenges and support needed

Countries that participated in this questionnaire in the majority of the cases see three *main challenges in their SHS system* in their country: insufficient involvement of families/teachers in the health promotion programs, lack of adequate funding for the system and shortage of personnel employed in SHS. In around half of the countries, uneven access, inequalities in access to service for some groups and inadequate training are challenges they face. In some countries other challenges are experienced, such as legislation for SHS in Slovakia and the need to create clear competence concerning the health of pupils and healthy environment in Austria (Figure 3.3).

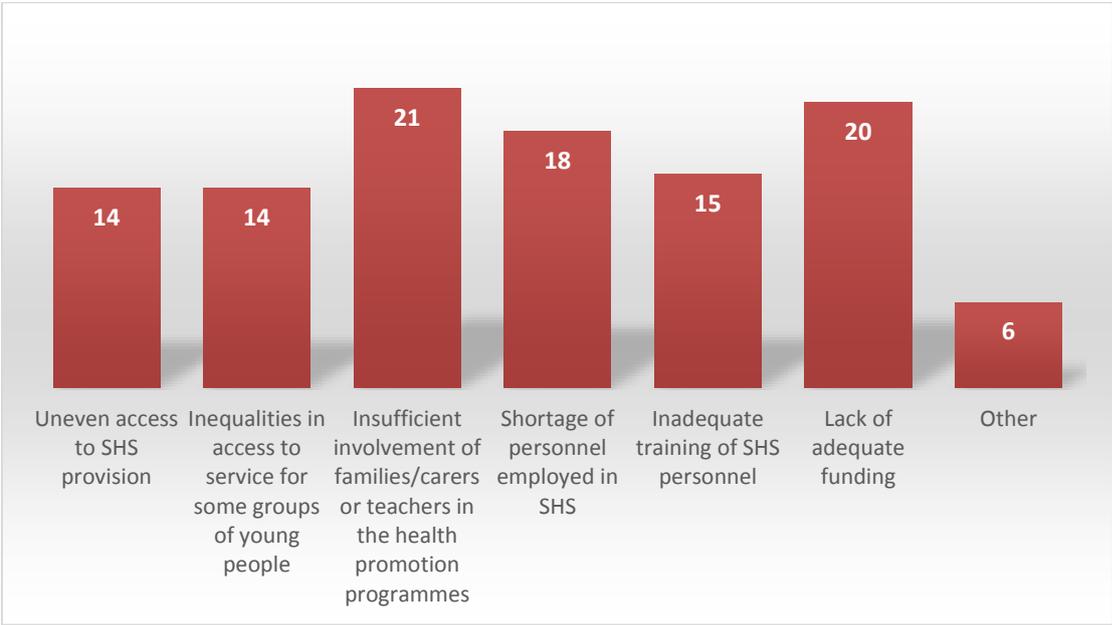


Figure 3.3: Challenges experiences in the SHS system according to country agents (n=countries)

When looking at *the support that countries need to develop their SHS system further*, the main need is for more data on effectiveness in order to be able to advocate for pupils with the decision makers in politics and other relevant organizations. Supporting law or regulations to establish the position of SHS in educational institutions is needed in about half of the countries that participated. The need for a clearer division between different (school) health providers is not big, only four countries indicated that need (Table 3.10).

Development in SHS between 2009 - 2016

A joint paper between MOCHA and WHO is being produced, that will present the changes in the organization of SHS in 2016 compared with 2009. This reports showed that differences of SHS between 2009 and 2016 do not seem substantial. Examples of changes concern the content of health prevention programs: in 2016, there is more attention for healthy lifestyle, for social, emotional and behavioural problems and/or additional screenings. In 2016, a majority of the countries indicate that there is a need for revision of their country’s SHS; this need for example concerns law or regulation, which would establish the position of SHS in educational institutions

and a clearer division of responsibilities between SHS-professionals and general practitioners/family doctor. In conclusion, SHS seems little changed over the years. However, this does not mean that SHS works optimally: country agents indicate that there is still a need to optimize SHS in terms of organizational and quality issues.

Table 3.10: Support needed to improve the SHS system

Support needed	Number of Countries
Law or regulation which would establish the position of SHS in educational institutions	13
Clearer division between school nurses/ school doctors/ general practitioners / family doctor responsibilities	6
More data on effectiveness of SHS to advocate for pupils with the decision makers	23

3.4 Models for SHS based on governance

This section identifies the groups of countries whose SHS are organized less or more in similar ways; in other words, they are broadly similar in their answers to our research inquiry about descriptions of the features and indicators of their SHS. The strongest dimension in terms of similarity was Governance and this was therefore used to identify the different models of SHS. The participating countries are presented in Figure 3.4.

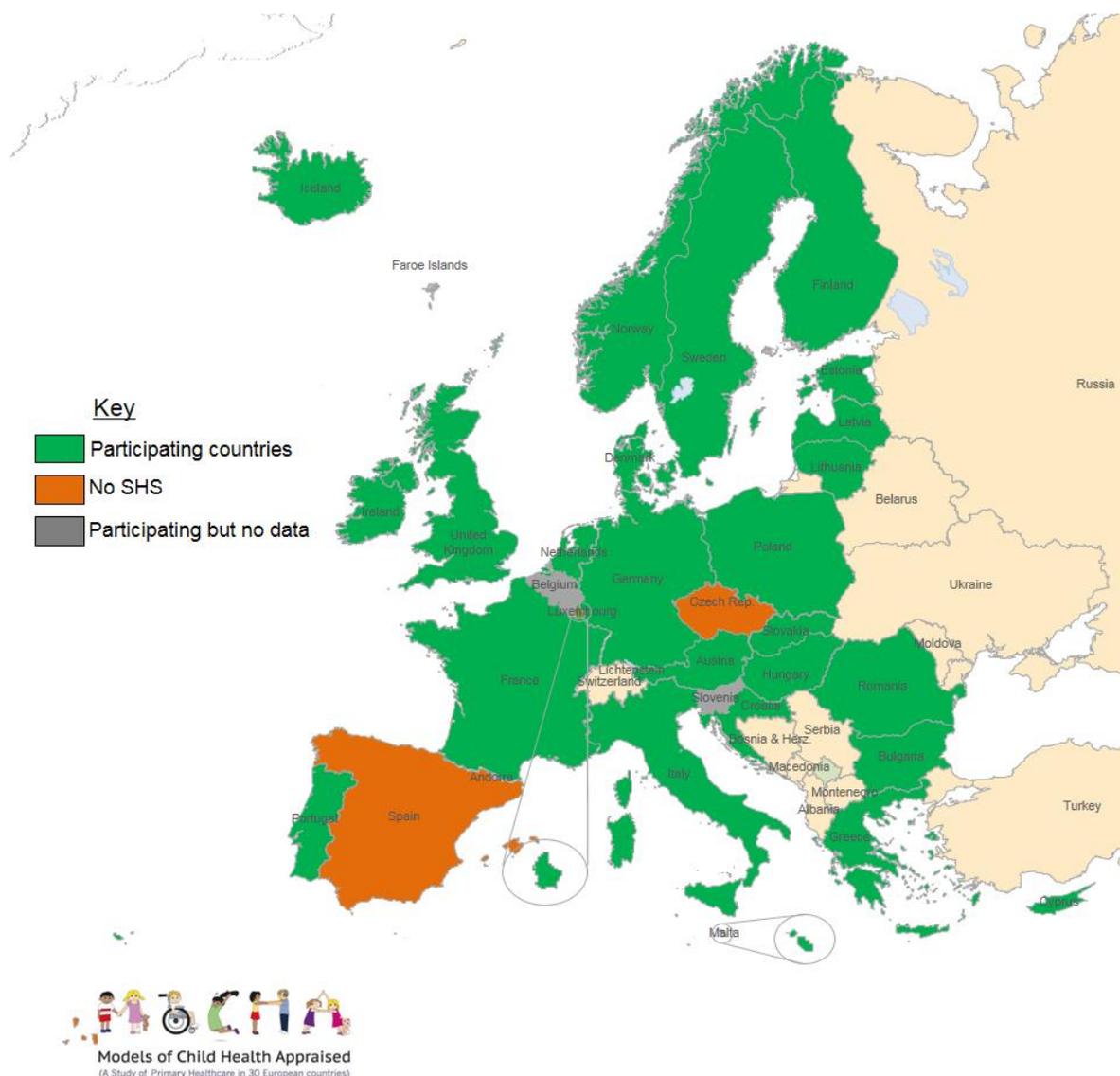


Figure 3.4: The 30 participating countries in the MOCHA project

Basic model of school health services

Considering all the previously mentioned attributes of SHS across the EU and EEA, the following general properties can be described which are true for the large majority of the included countries:

Responsible for the organisation of SHS are primarily the Ministry of Health (27/30) and local health authorities (22/30) and is to a lesser extent a shared responsibility between central and local governments (20/30). National SHS legislation is defined in most countries (22/30), most often concerning policy on Health Promoting Schools and to a lesser extent policy aimed at creating conditions for facilitating SHS. In most countries, quality assurance of SHS is established using guidelines detailing quality assurance (19/27) and SHS staff has clearly defined and written job descriptions detailing their responsibilities (19/27). At least some policy regarding school dropouts is also common in SHS (29/29), detailing policies to tackle absenteeism and reintegration into the school system.

The workforce of SHS in most countries consists of a multidisciplinary team (20/29), with at least a school nurse and a school doctor (16/29). This team functions as a liaison between pupils, teachers, families and other healthcare providers (29/29). Training for SHS staff's tasks is included in most countries (26/27). SHS personnel have access to a dedicated room inside the school in most cases (20/29).

Broad themes regarding the responsibilities of SHS staff can be described, although the exact responsibilities vary between countries. Medical care is provided by SHS in most countries (22/29) and involves tasks like managing pupils with chronic illness (19/29) and the administration of medication. Emergency care, for example the application of bandages, is also often provided by SHS professionals (24/29). In most countries, height and weight are screened (27/28), with a large majority of countries reporting vision (24/28) and hearing tests (22/28) and dental screenings (19/28). Preventive measures include vaccinations (21/28), referrals to other health professionals (22/28), infection control (19/28) and surveillance of the school's hygiene (18/28). Mental health and behavioural problems (26/29), covering topics like stress, bullying and depression, are included in most school health systems. Group health promotion is performed, regarding topics like sex education (27/29).

Lifestyle-related issues are regarded as a priority for pupils in all countries, e.g. physical activity, healthy eating and substance abuse. SHS are involved in the development and implementation of specific programmes to improve these issues.

Differences between countries

This section presents four models for SHS in the EU and EEA. Based on the four models, a relatively consistent pattern appears for the features of Governance and (to a lesser extent) for Workforce (meaning that countries ranking high on one features of a component are also likely to be high on other features as well). The features of SHS delivery show a great deal of variability and inconsistency between and within countries and most of the results regarding process dimensions did not support the four models.

Model A. Extensive national policy on School Health Services

Ten countries that are designated as having a more extensive national policy on SHS are: Bulgaria, Croatia, Finland, the Netherlands, Norway, Poland, Portugal, Sweden and UK (England) and UK (Northern Ireland) (Figure 3.5).

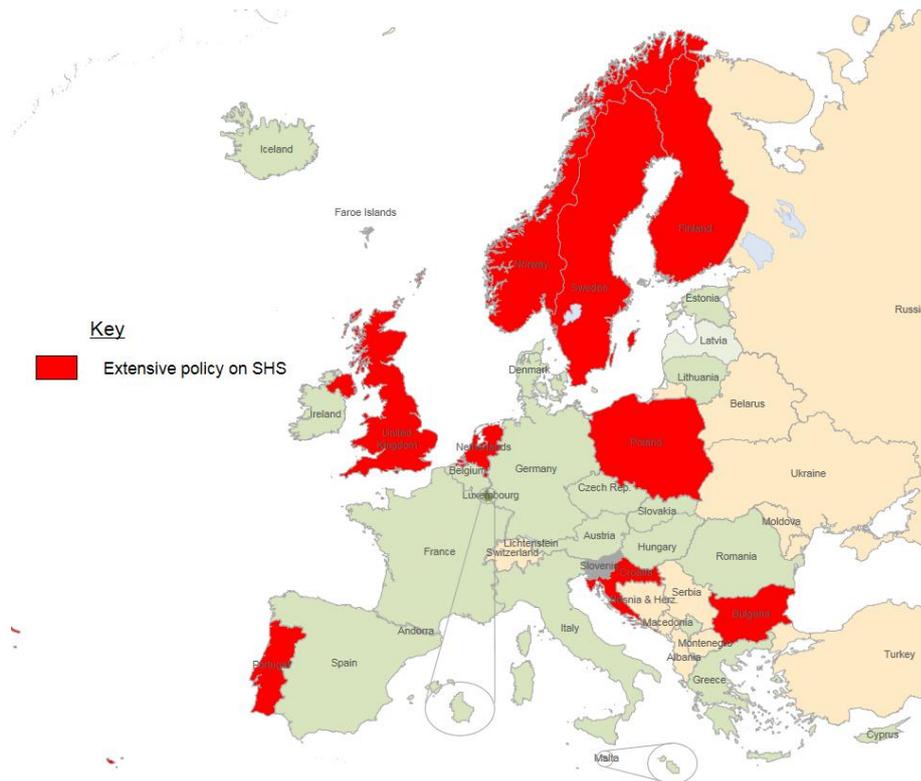


Figure 3.5: Countries with a more extensive national policy on SHS (red-coloured countries)

Organizational structure with the dimensions Governance and Workforce

GOVERNANCE: Countries part of model A have an extensive national policy on the structure of SHS and conditions that are expected to influence the quality and outcomes of SHS (Appendix 6 - Table 1a). These countries have a *national policy* on facilitating SHS by achieving their goals (equipment, staffing, and data management) and towards being a health promoting school. Countries have also some *policy on equity* by advising inter-professional meetings, guidelines to improve integration and/or possibility of a follow-up for vulnerable pupils. The *responsibilities* for the development of SHS policy on content/scope, workforce and funding is a responsibility of national authorities (Croatia) or a *shared responsibility* of the national (Ministry of Health and/or the Ministry of Education) and local authorities (local health and/or education authorities). Countries with model A have some kind of *stakeholders' involvement* (parents, health insurers, medical providers and/or pupils) in the development of SHS policy. Countries with model A have *recommendations/regulations for quality management* (with the exception of Croatia) and a policy on the collaboration between SHS and other forms of primary care services.

WORKFORCE: Countries that conform to model A have also a rather extensive policy on workforce SHS, although to a lesser extent than for governance (Appendix 6 - Table2a). The SHS in all countries with model A consist of various *types of professionals* (at least a school nurse and school doctor) and in most countries with model A; these professionals are working in a team. Countries with model A differed in the *tasks* SHS providers have in *direct medical care*, such as administration of medication, provision of care in case of injury or acute illness and/or management of pupils with chronic illness. While most countries with model A are involved in medical care, in some countries, SHS providers are not (the Netherlands and Norway). Countries with model A are not involved in *emergency care*, such as benign injuries, loss of consciousness,

emergency care (there was no response from Bulgaria). In most countries with model A, SHS providers have a clearly defined *liaison role* between pupils, teachers, parents and other health care providers. Bulgaria is the exception in this (they do not have a clearly defined liaison role between pupils and teachers). In all the countries with model A, SHS providers 1) have *clearly defined jobs (professional status)*, 2) are adequately (n=6) or somewhat *trained* (n=4), 3) need specialization for employment and 4) have access to supervision.

The countries part of model A can be subdivided in countries that have a national policy and national autonomy on SHS and countries with a national policy on SHS and regional autonomy regarding SHS in the practical implementation. For example, Croatia and Poland do not have great variations in policy and autonomy in SHS between regions, suggesting a national policy and autonomy. Croatia and Norway have also only national authorities that are responsible for SHS, suggesting a nationally managed SHS.

Process of school health delivery with the dimensions access, continuity, coordination and comprehensiveness

Countries that are clustered for the dimensions *Governance* and *Workforce* cannot be clustered for the process dimensions *Access, Continuity, Coordination and Comprehensiveness*, neither are the answers/responses on the indicators on the process dimensions leading to other models (Appendix 6 - Table 3a). There is a lack of variability in process features between countries (for example in the dimension comprehensiveness) and countries where there is an ambiguous picture on the process dimensions. One result regarding process dimensions is that some countries with model A (Bulgaria, Finland, Norway, Poland, Sweden and UK) seemed to be more oriented to schools by having a school-based SHS (dimension *Access*) and schools that keep and update information concerning the health of pupils (dimension (*informational*) *Continuity*), whereas other countries (Croatia, the Netherlands and Portugal) did have SHS on distinct locations and/or in primary care and do not keep and update information on pupils.

Model B. Basic national policy on School Health Services

The basic national policy model is characterized by the existence of some national policy on parts of SHS.

Ten countries conform to model B: Cyprus, Estonia, France, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg and Romania (Figure 3.6)

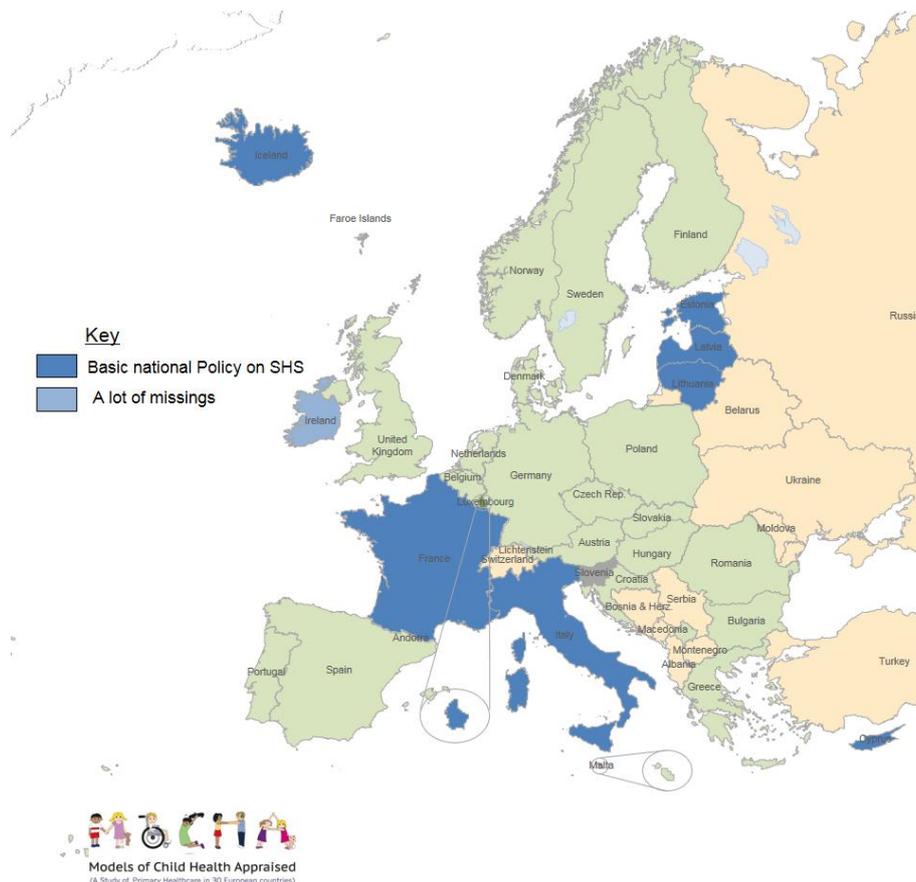


Figure 3.6: Countries with a basis national policy on SHS (eight dark blue-coloured countries and two light blue coloured countries (Ireland and Luxembourg) a large amount of missing data).

Organizational structure with the dimensions Governance and Workforce

GOVERNANCE: Countries part of Model B have a less extensive *national policy on SHS* and conditions that might be important for an effective SHS (Appendix 6 - Table 1b). Countries have some *national policy* on health in schools. This policy is aimed at facilitating SHS by achieving their goals (France, Iceland and Romania) or at being a health promoting school (the remaining Model B countries). There is a system of *shared responsibilities* between national and regional authorities for the policy on SHS, with the exception of Cyprus in which the Ministry of Health is the only responsible party for SHS. Most of the countries with model B have some *recommendations/regulations for quality management* in SHS (with Lithuania and Romania having more attention for quality management) and some policy on *collaboration* between SHS

and other forms of primary care services (with the exception of Cyprus and Latvia having no policy on collaboration). There is also some *involvement of stakeholders* in these countries, with particular attention for the (developmental) needs of pupils.

WORKFORCE: The SHS in countries that conform to Model B have a less extensive national policy on workforce (Appendix 6 - Table 2b). SHS consists of at least a school nurse, most often in combination with a school doctor and other types of SHS providers, such as social workers or dentists (Cyprus, Finland, Luxembourg and Romania). In contrast to the countries with Model A, SHS in all countries with model B, with the exception of Cyprus and Italy, have *tasks in direct medical care* (such as administration of medication, provision of care in case of injury or acute illness and/or management of pupils with chronic illness) and in some countries in *emergency care* (such as benign injuries, loss of consciousness, emergency care (with the exception of Iceland, Ireland, Latvia, Lithuania). In half of the countries with model B, the *role of SHS providers as liaison* between pupils, teachers, parents/community and other health care providers is clearly defined. In five countries with model B, SHS providers have *clearly defined jobs (professional status)*; in the rest of the countries with model B they have not. In three countries with model B, *specialization in SHS is needed for employment* (Cyprus, only for nurses, Finland and Latvia) and in two countries (Finland and Iceland) SHS providers have *access to supervision* on their performance.

Process of school health delivery with the dimensions access, continuity, coordination and comprehensiveness

As in model A, in model B it is also difficult to cluster countries according to the process dimensions (Appendix 6 - Table 3b). It is noteworthy that some countries with model B (Estonia, France, Iceland, Latvia, Lithuania and Romania) seemed to be more oriented to schools, by having a school-based SHS (which might increase access of pupils to health care). In addition, in most countries with model B schools keep and update information concerning the health of pupils (by which the continuity of care in schools can be better guaranteed). In other countries the information about health was because of privacy the responsibility of the SHS team (for example Luxembourg).

Model C. Limited national policy on School Health Services

Countries with model C have a limited national policy on SHS.⁴

Seven countries have model C: Austria, Denmark, Germany, Greece, Hungary, Malta and Slovakia (Figure 3.7).

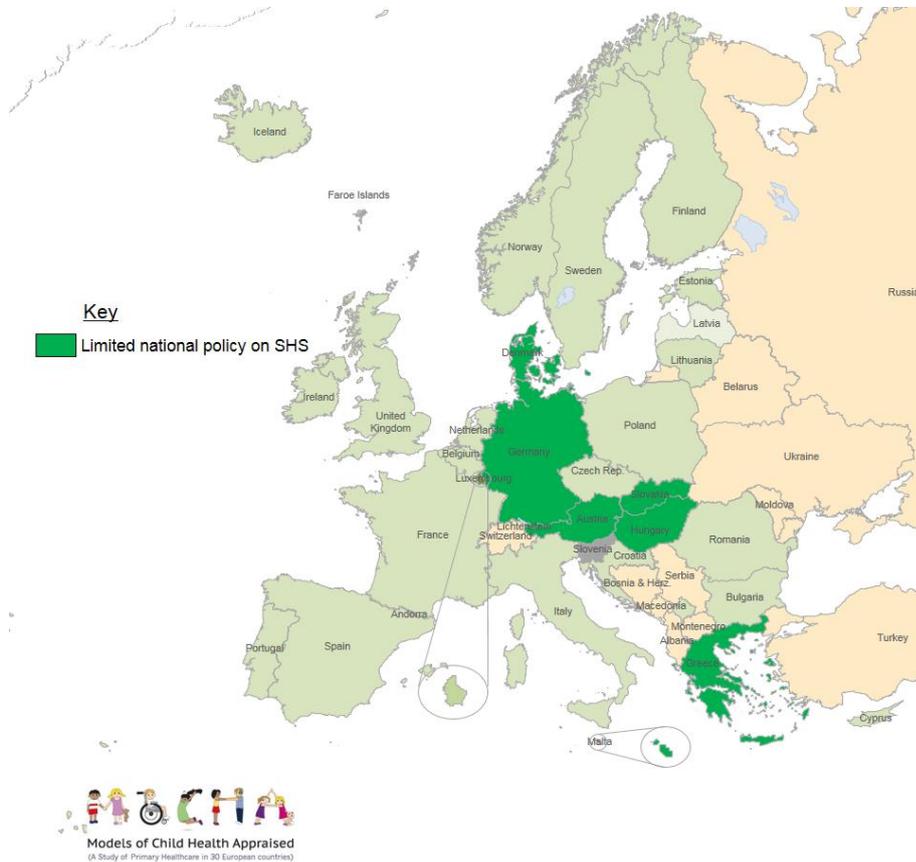


Figure 3.7: Countries with a limited national policy on SHS (green-coloured countries)

GOVERNANCE: In Model C there is a limited or no national policy on governance of SHS (Appendix 6 - Table 1c). There is (almost) no *national policy* on facilitating SHS in achieving their goals and towards being a health promoting school, there are no national recommendations/regulations for *quality management* and no *national policy on the collaboration* between SHS and other forms of primary care services. In most of the countries with model C, stakeholders are not *involved in the development* of policy on SHS. In two of the seven countries with model C, Denmark and Germany, is some alignment to the needs of pupils. SHS in model C seemed to be mainly the *responsibility* of regional authorities, with the exception of Austria and Germany in which national authorities have (a shared) responsibility for SHS.

WORKFORCE: In Model C there is a limited or no national policy on workforce of SHS (Appendix 6 -Table 2c). Although the majority of countries with model C have various types of professionals in SHS (Austria, Denmark, Germany, Hungary), in three countries only nurses are part of SHS. In Denmark, Germany, Greece and Malta, the SHS professionals do not provide *direct medical or emergency care*, but in the other four countries with model C, SHS providers take care in case of

⁴ A limited policy on national level does not say anything about the quality of SHS on regional or local level.

injury/acute illness (Austria, Hungary). In Slovakia, SHS providers have task in the administration of medication and in the provision of care in case if injury or acute illness. In most countries with model C, SHS providers have no or a limited defined *liaison role between pupils and teachers, parents or other health care providers*, with the exception of Austria and Malta. In three countries with model C, SHS providers have *clearly defined jobs*, in the other four countries with model C, they have not. *No specialization in SHS of the countries in model C is needed for employment* (with the exception of Denmark and Hungary) and providers have *no access to supervision on their performance* (with the exception of Malta).

Process of school health delivery

As in Model A and B it is difficult to cluster the countries according to the process features (Appendix 6 - Table 3c).

Model D. No SHS

The Czech Republic and Spain have no SHS (Figure 3.8).

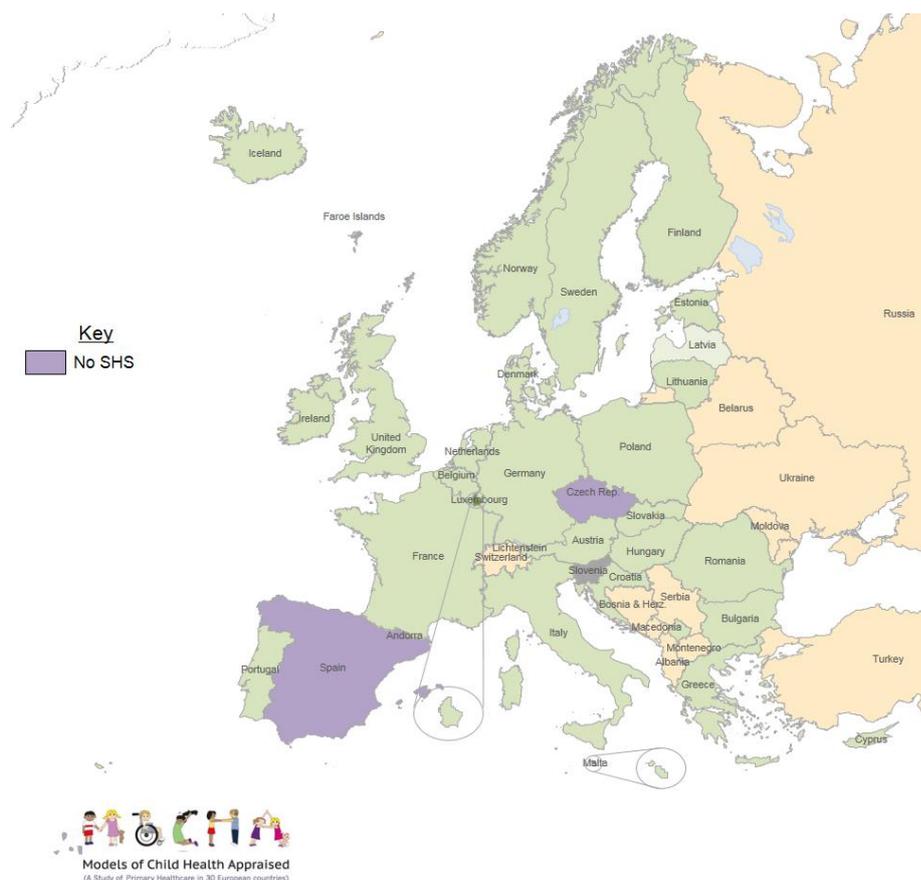


Figure 3.8 Countries with no SHS (purple-coloured countries)

Missing

Information about Belgium Flanders and Belgium Wallonie was insufficient to be able to add these countries to a model.

3.5 Health outcomes

Regarding health outcomes data, only few databases were available that covered the majority of the 30 countries or most of the age groups of children and adolescents. Appendix 7 contains the results of our search on health indicators. In addition, the dataset that seemed most appropriate for health outcomes, the Health Behaviour School aged Children (HBSC), contained self-reported data. Especially regarding risky behaviours such as smoking and drinking, self-reported data can lead to a too positive representation of health. Finally, in order to relate models, including several features, to health outcomes, we should also have a composite or more general health outcome measure. SHS and AHS are often not only directed towards one specific health outcome, such as body mass index (BMI), but to health in general. These data however are not available. In stead of this process indicators of SHS were compared to the expenditure estimations.

Wallonia in Belgium or the different countries in the UK and combined averages were calculated when necessary. No additional data processing was required.

These data were processed using R and the package dplyr (75,76). Visualisation of the data was done by creating maps, to be able to visualize geographic effects of the aforementioned outcomes. These maps were created with the tmap and ggplot2 packages of R.(76,77).

4. Adolescent health Services

In this chapter the organization and delivery of Adolescent Health Services (AHS) will be described. Using the PHAMEU (Primary Health Care Activity Monitor for Europe) framework (9), the **organizational structure** of adolescent health services is divided into three structure dimensions: governance, economic conditions and workforce development (Chapter 4.1) and in four process delivery dimensions (chapter 4.2): access, continuity, coordination and comprehensiveness. Each dimension is detailed in features and indicators (see Appendix 4). This chapter presents the results of the 30 participating MOCHA countries on the indicators that were identified by experts as most important. Chapter 4.3 contains the models for AHS.

4.1 Organizational structure of AHS

The way AHS are structured might seriously impact the process of AHS delivery and subsequently, the health outcomes for adolescents. In accordance with the PHAMEU framework (9), the structure of SHS is divided into three dimensions: governance (4.1.1), economic conditions (4.1.2) and workforce development (4.1.3).

4.1.1 Governance

National Policy on adolescent health care services

Current and future policy on AHS

To investigate whether countries have national policy on adolescent health care services, the country agents answered the following questions:

1. In your country, are there specific policies or guidelines for primary care to advice on delivering appropriate, adolescent-friendly service for older children or adolescents?
2. If so, do the policies or guidelines provide adolescent-specific information about:
 - a. Confidentiality
 - b. Shared decision making
 - c. Respect of privacy
 - d. Health and healthy lifestyles
 - e. Treatment and participation

Country agents from sixteen countries indicated that there is no national policy regarding primary care that is specifically tailored to older children or adolescents. Fourteen country agents indicated that their countries have specific policies. Of these fourteen countries, France, Finland, Greece, Spain, and UK (England) have policy on all mentioned topics. In the other nine countries, there is a mixture of topics covered. Most often countries have policy on health & healthy life (n=12), followed by confidentiality and treatment & participation (n=11), shared decision (n=10) and privacy (n=9). For country specific information, see Table 4.1.

Policy on equity in access

Policy on equity in access

This indicator looks at the availability of policy or law on the distribution of health care providers and facilities. The question asked on this indicator gives insight in the availability of health care staff to assist adolescents of vulnerable groups in accessing health care (Table 4.1).

An example of a group that may have difficulty accessing health care services is that of migrants that do not (yet) speak the country's language well. Country agents were asked to indicate if there **are translators available in primary care for adolescent patients or their parents if they are not equipped enough to understand the health care professional**. Seventeen country agents indicated that there is a translator available if needed. However, in some of these countries, for example, Cyprus, the translator is not available at all requested moments. Thirteen country agents indicated that there is no translator available in their country.

In addition to having translators available, we asked if there were **professionals available who are trained in inter-cultural issues**. These individuals can assist health professionals in the communication with migrant adolescents and their parents. In eighteen countries, such professionals do exist and are available, but only in larger cities. Two of these countries have a special situation: In Bulgaria, there are not many migrant children and where these migrant children are (mostly large cities where the refugee locations are), these professionals are provided. However, this is not provided nationwide. In Norway, there are professionals that are trained in inter-cultural issues available in larger cities with many immigrants. However, these "integration teams" are not health care specific and available for the whole family. Twelve country agents indicated that no such professionals are available in their countries.

Policy on access of school drop outs to SHS

Country agents were asked to provide information on what **policy and guidelines are available for inter-professional meetings to discuss the issue of absenteeism, violence and disruptive behaviour or school drop-outs**. This includes meetings between teachers, family doctors, social workers or other involved persons. Thirteen country agents indicated that in their country in most cases policy or guidelines are available. In six countries only in selected cases are guidelines or policy available. In eight countries there is no policy or guideline available.

Guidelines on interventions to improve integration in school (Table 3.1) of children who are frequently absent in schools are present in 24 out of 29 countries. See for more information on policy on equity in access for SHS, chapter 3.1.1 and Table 3.1.

Table 4.1: Essential indicators of governance for AHS; national policy and policy on equity

Country	National policy	Policy on equity in access		
	Policies for PC to advice on delivering adolescent friendly services ¹	Translator available in PC	Trained professionals in inter-cultural issues	Policy/guidelines that encourages inter-professional meetings to discuss violence and disruptive behaviour or school drop-out
Austria	No	No	No	No policy
Belgium- F	Yes ^{ABCD}	Yes	Some places	No policy
Bulgaria	Yes ^{ADE}	Yes	Most and some places	Selected situations
Croatia	Yes ^{DE}	Yes	No	Most cases
Cyprus	No	Yes	No	No policy
Czech Republic	No	No	Some places	Most cases
Denmark	No	Yes	Some places	Most cases
Estonia	Yes ^{ABDE}	No	No	Selected situations
Finland	Yes ^{ABCDE}	Yes	Some places	Most cases
France	Yes ^{ABCDE}	Yes	Some places	-
Germany	Yes ^A	No	No	Selected situations
Greece	Yes ^{ABCDE}	No	No	Most cases
Hungary	No	No	No	-
Iceland	No	Yes	No	No policy
Ireland	No	Yes	Some places	Yes
Italy	Yes ^{BCDE}	Yes	Some places	No policy
Latvia	No	Yes	No	No policy
Lithuania	No	No	No	Most cases
Luxembourg	No	Yes	Some places	Selected situations
Malta	No	No	Some places	Most cases
Netherlands	No	No	Some places	Most cases
Norway	Yes ^{ABE}	Yes	Some places/No	-
Poland	No	No	No	Most cases
Portugal	Yes ^{ACDE}	No	Some places	Most cases
Romania	No	No	No	No policy
Slovakia	No	No	Some places	No policy
Slovenia	Yes ^{BCD}	Yes	Most places	Most cases
Spain	Yes ^{ABCDE}	Yes	Some places	Selected situations
Sweden	No	Yes	Some places	Selected situations
UK ENG	Yes ^{ABCDE}	Yes	Some places	Most casus

¹ Providing specific information on **A** Confidentiality, **B** Shared decision-making, **C** Respect of privacy, **D** Health and healthy life styles and **E** Treatment and participation

Quality management infrastructure

Development of clinical guidelines

Information about policy on quality management and infrastructure was gathered by asking for the existence and use of clinical guidelines. Country agents were asked to indicate if, in their country, **guidelines exist for primary care practitioners on screening young people for mental health issues**, and if so, who undertakes these screenings. In 14 out of 30 countries there are guidelines for screening, in 13 out of 30 countries there are no guidelines. In three countries, Belgium, France and Lithuania, it is not clear if there are guidelines for the screening of mental health issues in young people. In 11 out of the 13 countries that have guidelines, the primary care physician can perform the screenings. In three countries, school nurses can also perform these screenings. Only in Finland and the Netherlands is the situation different. Screenings are performed by a child and youth psychologist or a psychiatrist. In the Netherlands other mental health care professionals can perform the screening under supervision of a psychologist or a psychiatrist.

The country agents also answered questions on **guidelines for primary care professionals on how to deal with adolescent pregnancy**. Most of the country agents indicated that in their country no guidelines on adolescent pregnancy for primary care professionals exist (21 out of 28 countries). In eight out of 28 countries guidelines are available (Table 4.2).

Table 4.2: Essential indicators of governance for AHS; national policy and policy on equity

<i>Quality Management infrastructure</i>		
<i>Country</i>	<i>Guidelines PC screening young people on mental health issues</i>	<i>Guidelines/standards for PC professionals about adolescent pregnancy</i>
Austria	No	No
Belgium- F	Unclear	No
Bulgaria	Yes	No
Croatia	Yes	No
Cyprus	No	No
Czech Republic	Yes	No
Denmark	No	Yes
Estonia	Yes	Yes
Finland	Yes	Yes
France	Unclear	Yes
Germany	Yes	No
Greece	Yes	No
Hungary	No	-
Iceland	No	No
Ireland	Yes	Yes
Italy	Yes	No
Latvia	No	No
Lithuania	Unclear	No
Luxembourg	No	No
Malta	No	No
Netherlands	Yes	No
Norway	No	No
Poland	No	Yes
Portugal	Yes	No
Romania	No	No
Slovakia	No	No
Slovenia	Yes	No
Spain	Yes	Yes
Sweden	No	No
UK ENG	Yes	Yes

Stakeholders participation and advocacy

Rights of parents and adolescents

For adolescents it can be important to be able to access health care on their own terms and without their parents knowing or having to ask for permission. Country agents answered several questions on this topic. They reported that in 20 out of 29 countries it is possible for adolescents to **consult a family doctor or gynaecologist without their parents knowing**. In eight out of 29 countries this is not possible, and in one country (The Netherlands) it depends on the situation. In the Netherlands, adolescents under the age of 16 cannot visit a doctor without their parents knowing. However, if the situation is urgent and the only way to provide good care is without informing parents, then it is also possible to receive the needed care without parental knowledge. From the age of 16 it is possible for a young person to visit a doctor without parents knowing in the Netherlands.

We also asked if it is possible for adolescents to **consult a doctor of their own choice without their parents agreement** (e.g. chose another doctor than the one chosen by the parents). In 17 out of 28 countries it is possible to consult a doctor of their own choice. In 11 countries this is not possible. In the countries where it is not possible, this was generally because of a legal barrier. For example, in Bulgaria parental agreement is always required for a visit to a doctor, and for choosing a doctor. In Cyprus, there is no primary care 'list' system, and each consultation must be paid for, and the doctor will require the parents to be present.

In 22 of the 30 countries adolescents have **access to mental health services without parental consent**. This can consist of direct access to adolescent or youth mental health services, a hospital emergency department or a normal primary care practitioner. In three other countries (Czech, Greece and Sweden) adolescents have access to a multidisciplinary team or a variety of health services. In five countries (Cyprus, Lithuania, Malta, Poland, Slovakia) adolescents have access to a general primary care practitioner, but only with parental consent.

In fourteen of the 23 countries there is a **national policy or guideline on the right of children to refuse treatment**. These questions are addressed in Table 4.3.

Policy and procedures regarding confidentiality

Policy/laws regarding confidentiality

The ability of adolescents to make autonomous decisions plays a role in if they can receive health care without parents agreeing. However, in most countries (18 out of 27) there are no **ethical guidelines available on how to deal with assessing the ability of adolescents to make autonomous decisions**. If the country agent indicated that there is some kind of guideline, it is not always an official guideline. For example, in Finland and Norway there are general guidelines about assessing mental capacity and statements about rights of people, regardless of age.

Another important topic within adolescent health care is confidentiality. To investigate this topic, country agents answered several questions regarding confidentiality. First and foremost, they answered a question on **if their country has policy or legislation that guarantees confidentiality for adolescents within any health care setting** (except in life threatening situations or abuse). Twelve out of 26 countries have policy on this topic without any age specification. In three countries (France, Malta and The Netherlands) there is policy from age 16-

17 and in one country (Austria) from age 14-15. Ten countries have no formal policy on this topic (Table 4.3).

In addition, we asked about confidentiality in specific health situations where confidentiality plays a major role. The topic of abortion and the payment is one of these specific health situations. In fourteen of the 29 countries **it is possible for 15 years adolescent girls to have an abortion without her parents knowing**, of which it is in seven countries only possible when the doctor feels that the girl is at risk of physical or mental harm. In 15 countries it is not possible to seek an abortion without parents knowing. A follow up question was if it **is possible to arrange the abortion without the risk of parents receiving a bill or documentation via health services (e.g. insurance)**. In 12 of the 14 aforementioned countries this is possible; only in Austria and Belgium-F this is not possible. This means sometimes that even if the girl can get an abortion without parental knowing, parents will know about the abortion because of the resulting bill (Table 4.4).

Table 4.3: Essential indicators of governance for AHS; policy on autonomy and confidentiality

Policy and procedures on autonomy and confidentiality						
	Ethical guidelines for PC to deal with the assessment of adolescent autonomy	Legislation or policy on confidentiality	National policy/guidelines on right of children to refuse treatment	Access to mental health services without parental consent ¹	Consult family doctor or gynaecologist without parent's knowing	Consult doctor of their choice with(out) parental consent
Austria	No	From age 14	Yes	123	Yes	Yes
Belgium- F	?	Unclear	-	123	Yes	Yes
Bulgaria	Yes	No	No	123	No	No
Croatia	Yes	Yes	-	13	Yes	No
Cyprus	No	No	No	No	No	No
Czech Republic	No	Yes	Yes	Other	Yes	Yes
Denmark	No	Yes	Yes	123	Yes	Yes
Estonia	Yes	Yes	Yes	123	Yes	Yes
Finland	Yes	Yes	Yes	123	Yes	Yes
France	-	From age 16	-	123	Yes	No
Germany	Yes	Yes	Yes	123	Yes	Yes
Greece	No	Yes	No	Other	No	No
Hungary	-	No	-	123	No	No
Iceland	No	Yes	No	123	Yes	-
Ireland	Yes	No	Yes	3	Yes	Yes
Italy	No	No	No	23	Yes	Yes
Latvia	No	No	-	3	Yes	No
Lithuania	No	Yes	No	No	No	No
Luxembourg	Yes	Yes	-	123	Yes	Yes
Malta	No	From age 16	No	No	No	Yes
Netherlands	No	From age 16	Yes	3	Depends	Yes
Norway	Yes	-	Yes	123	Yes	Yes
Poland	No	-	Yes	No	No	No
Portugal	No	No	Yes	123	Yes	Yes
Romania	No	-	No	2	No	No
Slovakia	No	No	No	No	Yes	Yes
Slovenia	No	No	-	1	Yes	Yes
Spain	No	Yes	Yes	123	Yes	Yes
Sweden	No	No	Yes	Other	-	-
UK ENG	Yes	Yes	Yes	123	Yes	No

1 A direct access adolescent health or youth mental health service, without needing parental consent, **2** A hospital emergency department, without needing parental consent, **3** Normal primary care practitioner, without needing parental consent or accompaniment. **No** A normal primary care practitioner, but only with parental consent or accompaniment, **Other** Such as multidisciplinary teams or a variety of specialized health services.

Table 4.4: Essential indicators of governance for AHS; policy on autonomy and confidentiality (continued)

Policy and procedures on autonomy and confidentiality				
Country	Transactions of health insurance visible to the parents	Transaction of oral contra- or emergency contraception visible to parents	Abortion, without risk of parents receiving a bill	Adolescents undergoing an abortion without parents knowing
Austria	Annual insurance bill	No	No	Yes ³
Belgium- F	Visible	-	No	Yes ³
Bulgaria	Not covered	Not covered	Yes	No
Croatia	Not covered	Not covered	-	No
Cyprus	Not covered	Not covered	Yes	No
Czech Republic	Not covered	Not covered	-	No
Denmark	Not covered	Not covered	Yes	Yes ³
Estonia	No prescription	No prescription	Yes	Yes ³
Finland	Not covered	Not covered	Yes	Yes
France	No	Free and anonymous	Yes	Yes
Germany	Depends	< age 14	Yes ²	Yes ³
Greece	Not covered	Not covered	-	No
Hungary	-	Not covered	No	No
Iceland	N/A	N/A	No	No
Ireland	N/A	N/A	-	No ¹
Italy	Not covered	Not covered	Yes	Yes
Latvia	Not covered	Not covered	-	No
Lithuania	Not covered	Not covered	No	No
Luxembourg	Depends	?	Yes	Yes
Malta	Not covered	Not covered	-	No ¹
Netherlands	No prescription	No prescription	Yes	Yes ³
Norway	N/A	N/A	Yes	Yes ³
Poland	Fully paid	Fully paid	-	No ¹
Portugal	Depends	Depends	-	-
Romania	-	-	-	No
Slovakia	-	-	No	No
Slovenia	Not charged	No	Yes	Yes
Spain	Not covered	Not covered	-	No
Sweden	-	-	Yes	Yes
UK ENG	-	N/A	Yes	Yes

¹ Abortion was illegal at the time of the study, with the recent referendum on this subject, and the impending legislation, it is expected that the payment in respect of abortion will be similar to other healthcare

² If the parents are insured privately, they get send all the bills/transactions (about 10% of the German population)

³ Yes, if the doctor feels that the girl is at risk of physical or mental harm

4.1.2 Economic conditions of the AHS system

AHS comprises all healthcare delivered in the primary care setting to adolescents; healthcare resource data for this specific group were not available to a sufficient degree, nor were specific quantifiable indicators available that could serve as a basis for an economic evaluation. This economic analysis therefore focuses on SHS, which includes any healthcare that is physically provided in the school. It also includes parts of AHS that are provided within the school setting.

4.1.3 Workforce development of AHS

Workforce for AHS was measured by asking for the competence of AHS providers.

Competence of AHS providers

We asked the country agents to state: **If an adolescent has a mental health emergency or if mental health assessment is needed, are schools equipped to deal with these emergencies or assessments?** In 15 countries, schools are not equipped to deal with these types of situations. In six countries on site help is available, with immediate referral from the school nurse. In six countries help is available within a few hours. This features was described for SHS, see Table 3.5.

Specialized centres in **sexual and reproductive health problems** are available in 17 out of 30 countries. In seven other countries the centres exist, but not only for adolescents but for all ages. In Cyprus, France, Iceland, Malta, Poland and Slovakia no such centres exist. However, when having such centres present in a country, the activities they perform differ between countries and sometimes between centres in the same countries (see Table 4.6).

4.2 Proces of AHS delivery

4.2.1 Access to adolescent health care services

National availability of AHS

Density available AHS workforce

We asked the country agents **what type of practitioner is available for a young person (14-16 years) to consult primarily when having (casual) health problems or when wanting a check-up.** In most countries more than one type of practitioner is available for adolescents. In 23 countries a young person can visit a family doctor, in 15 countries a primary care paediatrician, in 11 countries the school nurse, in five countries the community centre and in 13 countries another type of health professional, such as a school doctor, an emergency unit or an outpatient ambulatory clinic (Table 4.5).

Flexibility appointment times/consultation hours

To gain information on flexibility we use the case of an adolescent who has suicidal thoughts. **The existence of what same day referral services of the primary care practitioner is available** differs per country. Country agents indicated that in four out of 28 countries it is not possible or difficult to get help on the same day. In the other countries it is possible to get help, but it differs greatly what the options are per country. **In 22 countries it is possible to be**

referred to a child and adolescent psychiatrist and/or a general child & adolescent psychiatrist on the same day. In some countries it is possible to see an adolescent psychiatrist in a hospital emergency unit (Belgium), a crisis intervention service run by a mental health nurses with psychiatry back up (Malta), mental health care services for adolescents depending on the severity of the thoughts (Netherlands) and a psychiatric child hospital or a mental health emergency room (Norway) (Table 4.5).

In seventeen countries there is **always a specialist available during nights and weekends** (Table 4.6), in nine countries there is a specialist available but not everywhere or limited and in two countries (Estonia, Latvia) during nights and weekends no specialist is available.

The availability of emergency contraception is another important indicator of how flexible the time schedule is in a health system. The country agents answered the question **where an adolescent girl can go to be given emergency contraception (e.g. the morning after pill).** In all responding countries it is possible to get emergency contraception. Most countries (n=17) have multiple options where a young person can obtain the emergency contraception, such as via the community pharmacy, adolescent or reproductive health clinic, emergency department or primary care practitioner. In three countries (Bulgaria, Greece and Romania) the emergency contraception can only be obtained if there is permission from a parent to do so. All countries have (most often multiple) options **to obtain pregnancy tests** and in most countries (n=24) condoms are easily available (Table 4.6).

Accessibility of accommodation of AHS (incl. physical access)

After hours in AHS

Country agents were asked about **the availability of ambulatory facilities that are especially dedicated to adolescents who are in mental distress and are taking exaggerated risks.** It was indicated that in about 13 countries no such facilities are available. In nine countries facilities are available in a few regions and in eight countries they are available in most parts of the country (Table 4.5).

If ambulatory facilities for adolescent health care exist, country agents were asked to indicate if these facilities are **run by staff formally trained in the area of adolescent medicine and health.** Of the country agents who answered this question (n=18), eleven country agents answered that in their countries in most regions of the country, facilities were run by trained staff. Four country agents answered that in few regions facilities were run by trained staff. In the other three countries it was unknown (Austria) or it was mentioned that staff are not trained (Table 4.5).

Affordability of AHS

Cost-sharing for health care providers in AHS

In 15 of 20 countries (data on other countries was missing) the **payment for abortion** is made by the insurance company. In four countries the adolescent or the parents have to co-pay. In 18 of the 25 countries adolescents do not have to **co-pay for the use of mental health services** (Table 4.7). In Ireland costs may exist in relation to GP charges, as this is generally the first contact healthcare professional the adolescent will visit.

Coverage of contraception (for instance condoms)

In 18 countries **oral contraception** is not free of charge and in 14 countries adolescents have to **co-pay for emergency contraception**, such as morning-after pill (Table 4.7).

Table 4.5: Essential indicators of AHS on access (availability)

Access, availability							
Country	Practitioner young persons (14-16) can consult for health problems ¹	Availability of mental health emergencies	Professional who does undertake the mental screening	Same day referral for adolescents with suicidal thoughts	Type of specialist available for same day referral ²	Ambulatory facilities about risk taking ³	Ambulatory facilities with formally trained professionals
Austria	ABE	See Table 3.5	-	Difficult	1,2	Few regions ^{ABCD}	Unknown
Belgium- F	BCE		-	-	4	Most regions	Most regions
Bulgaria	B		PCP	Yes	2,3	No	Most regions
Croatia	B		School doctor	Yes	1,2	Few regions ^{AB}	Few regions
Cyprus	A		N/A	Yes	2	No	-
Czech Republic	A		PCP	Yes	2,4	Most regions ^{ABCDE}	Most regions
Denmark	BC		-	Yes	2	Most regions ^{ABCDE}	Most regions
Estonia	BCE		PCP/school nurse	Yes	3,4	No	No
Finland	DE		Psychiatrist/psychologist	Yes	1,2	Few regions ^{ABC}	Most regions
France	ABCDE		-	No	1,2	Most regions	-
Germany	ABE		PCP	Yes	2	No	-
Greece	AE		PCP	Yes	2,4	Few regions ^{ABC}	Most regions
Hungary	ABC		-	Yes	1,2	No	-
Iceland	BC		N/A	Yes	2	No	-
Ireland	B		PCP	Yes	-	No	-
Italy	ABD		PCP	Yes	2	Few regions ^{ABC}	Few regions
Latvia	BE		N/A	No	1	No	-
Lithuania	AB		N/A	Yes	4	No	-
Luxembourg	BCE		-	Yes	4	Most regions ^{ABCDE}	Most regions
Malta	BDE		N/A	Yes	1	No	-
Netherlands	B		PCP	Yes	1,2	Most regions ^{ABCD}	Most regions
Norway	BC		N/A	Yes	3	No	Most regions
Poland	ABC		N/A	Yes	3	Few regions	Most regions
Portugal	ABDE		PCP/school nurse	Yes	1,2	Few regions	Few regions
Romania	ABC		N/A	No	1,2,4	No	-
Slovakia	AE		-	Yes	2	No	-
Slovenia	A		PCP	Yes	2	Most regions ^{ABCE}	Most regions
Spain	AE		PCP	Yes	2	Few regions ^{ABC}	Few regions
Sweden	BC		N/A	Yes	4	Few regions ^{ABC}	-
UK ENG	B		-	-	2	Most regions	No

¹ A PC paediatrician, B Family doctor, C School nurse D Community centre, E Others such as school health centre or doctor, emergency unit, outpatient ambulatory clinics

² 1 Psychiatrist/Psychologist 2 Child& adolescent psychiatrist 3 Generally not possible 4 Other

³ A Sexual reproductive health, B Substance misuse, C Eating disorder, D Other conditions, E Comprehensive care, i.e. all/most types of adolescent health problems

Table 4.6: Essential indicators of AHS on access (availability)

Access availability (continued)						
Country	Specialist available during night/weekends	Specialized centres for adolescent sexual and reproductive health provides ¹	Places adolescents can go for emergency contraception ²	Places to obtain pregnancy tests ³	Condoms easily available	Advising/counseling of pregnant adolescent ⁴
Austria	Limited	Yes ^{1,2,3}	BCF	1267	Yes	ABC
Belgium- F	Yes	Yes ^{1,2,3}	A	12345	Yes	ABCDEFGG
Bulgaria	Not everywhere	Yes ⁴ /No ⁵	E	1	Yes	ACEG
Croatia	Not everywhere	Yes ² ,	D	123	Yes	ABC
Cyprus	Yes	No ⁶	F	1	No	C
Czech Republic	Yes	No ⁵	AD	12	Yes	C
Denmark	Yes	No ⁵	A	123	No	ACE
Estonia	No	Yes ^{1,2,3,4}	AB	1245	Yes	H
Finland	Yes	Yes ^{2,3,4}	A	1235	No	ABCDEFGG
France	Not everywhere	No ⁶	ABDE	1257	Yes	ABCDEG
Germany	Yes	No ⁵	A	1235	Yes	CDF
Greece	Not everywhere	Yes ^{1,2,3}	EF	156	No	ABC
Hungary	-	Yes ²³	F	12456	Yes	-
Iceland	Not everywhere	No ⁶	A	13	Yes	ABCDEG
Ireland	Not everywhere	No ⁵	ABCD	12345	Yes	AG
Italy	Not everywhere	Yes ^{2,3}	BCD	1345	No	ABCD
Latvia	No	No ⁵	A	1	No	C
Lithuania	-	Yes ¹	AF	1	Yes	ACD
Luxembourg	Yes	No ⁵	ABC	1245	Yes	ABCEG
Malta	Yes	No ⁶	AE	13	Yes	ABCDG
Netherlands	Yes	Yes ^{1,2,3}	AF	12	Yes	AD
Norway	Yes	Yes ^{2,3}	ABCD	135	Yes	ADE
Poland	Yes	No ⁶	F, on prescription	12	Yes	ABCDG
Portugal	Yes	Yes ^{2,3,4}	BCD	134567	Yes	ABCDE
Romania	Yes	No ⁵	E	15	Yes	ABCEFG
Slovakia	Yes	No ⁶	A	1	Yes	C
Slovenia	Yes	Yes ²³	BCD	167	Yes	C
Spain	Yes	Yes ^{2,3,4}	ABCD	13457	Yes	ABCDG
Sweden	Yes	Yes ^{2,3}	ABC	12356	Yes	DEG
UK ENG	Not everywhere	Yes ^{1,2,3}	AB	1256	Yes	AF

¹ Yes Countries have specialized centres with information¹, counselling² and/or medical care³ or centres providing other kind of sexual or reproductive health services⁴, No Centres are not specialized for adolescents⁵ or there are no centres⁶

² A Community pharmacy, B Direct access adolescent health or reproductive health clinic without needing parental consent, C Hospital emergency department without parental consent, D Usual primary care practitioner, without needing parental consent or accompaniment, E Usual primary care practitioner, with parental consent or accompaniment, F Other, such as private pharmacies, drugstores and G Not possible

³ 1 Local pharmacist, 2 Retail shop or supermarket, 3 Primary care physician or primary care paediatrician, 4 Emergency ward of a hospital, 5 Family planning centre, 6 Clinic specializing in adolescent medicine and health, 7 Community centre A General practitioner, B Primary care paediatrician, C Gynaecologist In PC, D Midwife in PC, E (School) nurse / school doctor F Community health worker G Social worker H Special doctor in maternity clinic

⁴ A General practitioner, B Primary care paediatrician, C Gynaecologist In PC, D Midwife in PC, E (School) nurse / school doctor F Community health worker G Social worker H Special doctor in maternity clinic

Table 4.7: Essential indicators of AHS on access (affordability), continuity, coordination of care and comprehensiveness

Country	Access, affordability			Continuity		
	Oral contraception free of charge	Co-payments for birth contraception	Payment abortion under 18 ¹	Co-payments or fees mental health	Formal policy to keep PCP involved in case of suicidality	Appointment/follow up when in vulnerable situation
Austria	No	Yes	B	Yes	No	Depends
Belgium- F	No	-	A	No	No	Yes
Bulgaria	No	Yes	A	No	Always/inconsistent	Depends
Croatia	Yes	No	-	-	No	Yes
Cyprus	No	No	B	No	No	No
Czech Republic	No	No	-	No	Always	Yes
Denmark	No	Yes	A	No	Always	Yes
Estonia	No	Yes	AB	Yes	Always	Yes
Finland	Depends ^a	Depends ^a	AC	Yes	Always	Yes
France	Yes	-	A	-	No	-
Germany	Yes	No	A	No	No	No
Greece	No	Yes	-	No	No	Depends
Hungary	No	-	-	-	No	-
Iceland	No	No	A	Yes	Always	Depends
Ireland	Depends	No	-	No	No	Depends
Italy	No	Yes	A	?	Always	Yes
Latvia	No	N/A	-	Yes	No	Depends
Lithuania	No	Yes	B	Yes	No	Depends
Luxembourg	No	Yes	A	?	Inconsistent/no	Yes
Malta	No	Yes	-	No	Always	Depends
Netherlands	Yes	Yes	C	No	Always	Depends
Norway	Yes	Yes	A	No	No	Yes
Poland	No	Yes	-	No	No	Yes
Portugal	Yes	Yes	C	No <18	Inconsistent	Yes
Romania	Yes	No	A	No <18	No	Yes
Slovakia	No	No	-	No	Always	-
Slovenia	Yes	No	A	No	No	Yes
Spain	No	No	-	No	Always	Yes
Sweden	Yes	Yes	A	Yes	No	Yes
UK ENG	Yes	N/A	A	No	Inconsistent	Yes

¹ **A** An insurance company or national health service, **B** Margret, or her parents, **C** Other, such as free of charge (in public hospitals)

^a Depends on municipality

4.2.2 Continuity of care of AHS

Informal continuity of care

Medical record keeping

Information about how medical records are kept and how medical information is shared is part of the organization of adolescent health care services. Country agents provided answers on several subtopics. For example, **who advises school staff members about children with life-affecting health issues (diabetes, epilepsy etc.) and how to manage them in school?** Results show that in 16 out of 26 countries a mixture of answers is given. The most common mixture is that it is up to the parents to advise and/or there is no official policy (n=18). For more detailed information about the range of answers, see the information of continuity of care in SHS, Table 3.8.

Country agents were also asked to indicate **if there is national policy or if it is practice for (non-SHS) school staff to keep records of pupils' general health issues.** In 18 out of 29 countries records are kept. In Norway, pupils' health is recorded within education records and in school health records that are only accessible for SHS professionals. See for more details the information of continuity of care in SHS and Table 3.8

When school staff is concerned about general health concerns of individual pupils, to who would school staff members report. Almost all country agents indicated that there are several possibilities. In 21 out of 29 countries they can go to the parents or guardians. In 17 out of 29 the can (also) go the school nurse or school doctor and in 12 countries the primary care providers or other agencies are among the possibilities. In Estonia, Latvia, Slovenia and Sweden health concerns are reported only to parents, in Cyprus, Denmark, Finland, Greece, Iceland, and Poland only to the SHS providers. See the information on continuity of care in SHS, Table 3.8.

To ensure continuity of care it may be important that the primary care professionals are informed of other treatment sought by the adolescent. In 16 out of 30 countries, country agents **indicated there is no formal policy in their country for the specialist to keep the primary care professionals involved about adolescents' health.** In ten countries policy exists and is applied always. In Portugal and the UK (England), the policy exists but is applied inconsistently and depending on the physician. The situation in Bulgaria is unclear as they answered that there is always policy but it is also applied inconsistently. The same goes for Luxembourg, there is inconsistent policy and it is not formal (Table 4.7).

4.2.3 Coordination of Care of AHS

Collaboration of AHS and PC of public health

Country agents were asked about the availability of ambulatory facilities that are especially dedicated to adolescents who are in mental distress and who are taking exaggerated risks. Seventeen countries mentioned that such facilities are available in most part or a few regions. Country agents were also asked to indicate if their ambulatory adolescent health care facilities **work in an inter-professional way** to establish the level of collaboration between professionals in providing care for adolescents. Of the 17 country agents who answered that in their countries ambulatory facilities exist, 15 indicated that they worked inter-professionally.

4.2.4 Comprehensiveness of care of AHS

Preventive care

Health problems interventions

Country agents were asked to provide insight into **the available adolescent self-harm and suicide prevention programs in their countries**. In 22 out of 29 countries the programs are available. Only in Belgium, Cyprus, France, Romania, Hungary and Slovakia there is no self-harm and suicide programs offered. In countries that offer these programs are sometimes school-based (4), community based (2), primary care based (1) or a mixture (13) of these options. In five countries other options are available. For example, in Finland NGOs promote mental health and suicide prevention.

Although in very few countries guidelines for pregnant adolescents exist, **programs or facilities for pregnant adolescents are more available**. In about half (13 out of 30 countries) facilities like follow up care programs (Greece), ante- and postnatal services focused on adolescent mothers (Ireland), programs that include housing (Latvia, Netherlands) and counselling services (Germany) are available. In the other 17 countries no specialized programs or facilities for adolescents are available. This however does not mean that there is no care for this group. In a number of countries, the regular maternal care is provided to this group of pregnant girls (Table 4.8).

Table 4.8: Essential indicators of AHS on coordination of care and comprehensiveness

Country	Coordination		Comprehensiveness		
	If ambulatory facilities exist are staff working in an inter-professional way?	Policy/guidelines encouraging inter-professional meetings to discuss absenteeism, violence and disruptive behaviour or school drop-out	Areas ambulatory facilities focus on ¹	Availability of adolescent self-harm and suicide prevention programs	Special programs for pregnant adolescents until delivery of the baby
Austria	Yes	See Table 3.1	See Table 4.5	Yes	Yes
Belgium- F	Yes			No	No
Bulgaria	-			Yes	Yes
Croatia	Yes			Yes	No
Cyprus	-			No	No
Czech Republic	-			Yes	Yes
Denmark	Yes			Yes	No
Estonia	-			Yes	Yes
Finland	Yes			Yes	No
France	Yes			No	No
Germany	-			No	Yes
Greece	-			Yes	Yes
Hungary	Yes			No	No
Iceland	-			Yes	No
Ireland	-			Yes	Yes
Italy	Yes			Yes	No
Latvia	-			Yes	Yes
Lithuania	-			Yes	No
Luxembourg	Yes			Yes	No
Malta	-			-	Yes
Netherlands	Yes			Yes	Yes
Norway	-			Yes	No
Poland	Yes			Yes	No
Portugal	Yes			Yes	Yes
Romania	-			No	No
Slovakia	-			No	No
Slovenia	Yes			Yes	No
Spain	Yes			Yes	Yes
Sweden	Yes			Yes	No
UK ENG	-			Yes	Yes

¹ **A** Sexual reproductive health, **B** Substance misuse, **C** Eating disorder, **D** Other conditions, **E** Comprehensive care, i.e. all/most types of adolescent health problems

4.3 Models for AHS

In the EU and EEA, Adolescent Health Services (AHS) in Primary Care are organized in different ways. There is a need for more insight into the characteristics of AHS within European countries. In addition, we need more insight into the extent to which these countries meet available standards.

We therefore identified groups of countries whose AHS are organized more or less in a same way, in other words, they gave similar answers on/descriptions of the features and indicators. This resulted in a basic model of adolescent health care across countries. Given the diversity of AHS across countries, we identified these countries first per domain of the PHAMEU framework, considering these dimensions to be the building blocks for an optimal health system to deliver AHS (78). Second, we identified groups of countries that had similar models of AHS, i.e. had similarly designed combinations of building blocks (PHAMEU dimensions).

Basic model of AHS

The majority of countries show similar results on some features of Governance. Most countries (23/28) have some policy on equity in access for adolescents with a migrant background, most often by having a translator available (16/23) and/or by having a policy that encourages interprofessional meetings to discuss disruptive behaviour.

Although policy on autonomy and confidentiality differed among countries, the majority of countries offer adolescents the chance to consult a mental health service (20 out of 28), a family doctor or gynaecologist (19 out of 27), or a doctor of their choice (17 out of 26) without needing parental consent. Countries also show similarities in the availability of self-harm and suicide prevention programs.

There are notable differences between countries in the access to adolescent health services, but all countries (n=28) have a practitioner that adolescents can consult for health problems or health check-ups. In most countries the first point of contact for adolescents is a family doctor (n=21) and/or a primary care paediatrician (n=13). Adolescents with suicidal thoughts can be referred the same day, in most countries to a child and adolescent psychiatrist (n=18) and/or a general psychiatrist or psychologist (N=8). In a majority of countries (n=23) it is also possible to obtain specialist support during night and weekend.

Most countries have easy access to contraception, by providing places where adolescents can easily obtain pregnancy tests (all countries), making condoms easily available (n=22) and/or making emergency contraception available without parental knowledge (n=22). However, contraception is in most countries not free of charge or without co-payments. In 18 countries adolescents have to pay for oral contraception (n=18) and in 15 countries, adolescents have to co-pay for birth control (n=15). Most countries also do not have guidelines or standards for primary care professionals about adolescent pregnancy (N=20).

Although some similarities exist, there appear to be significant differences between countries in the organization, structure and process of delivery of AHS. The clustering of countries led to five different models of AHS, on top of the basic AHS model:

Model A: Extensive policy on AHS

The countries in the extensive organisational model have a more extensive policy on equity in access, quality management infrastructure, confidentiality and autonomy (Figure 4.1 and Appendix 8, Table 1a).

Countries with an extensive AHS policy are: Denmark, Finland, France, the Netherlands, Norway, Spain, UK (England), to a lesser extent Croatia, Czech Republic, Estonia, Italy, Portugal and Slovenia.

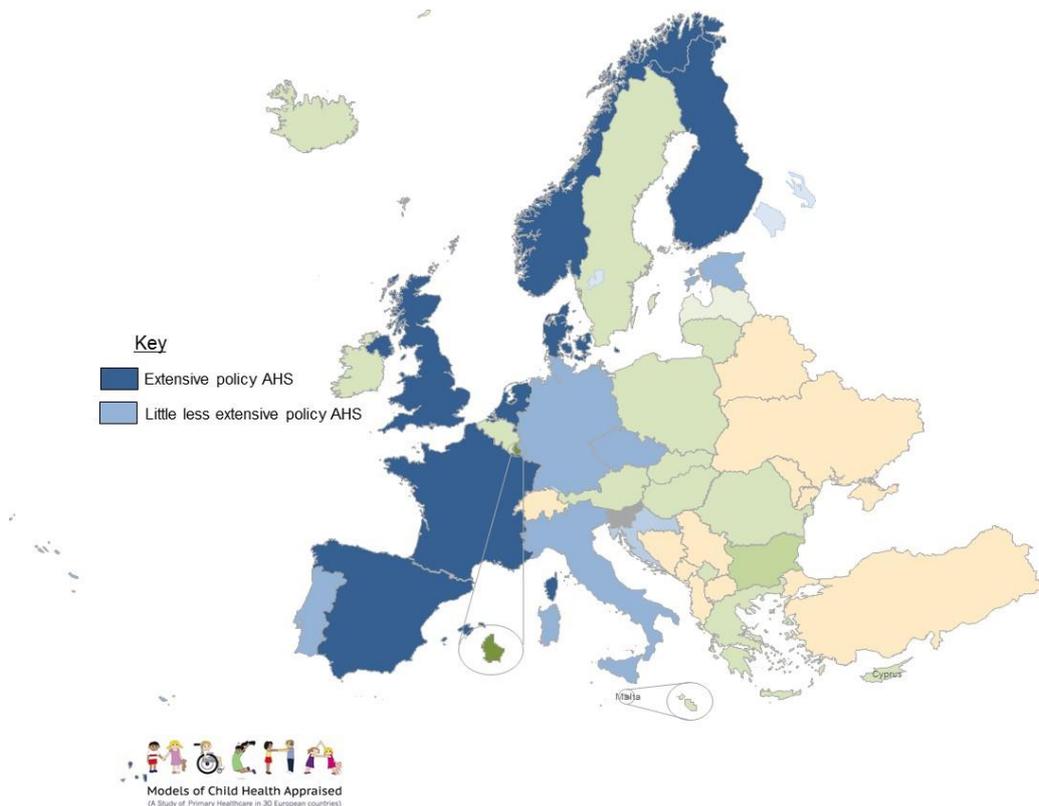


Figure 4.1: Countries with extensive policy on AHS

Organizational structure

Most countries within model A (9 out of 12) have a national policy to deliver adolescent friendly services (with the exception of the Czech Republic, Denmark and the Netherlands). This policy was most often aimed at maintaining confidentiality (does the policy for example protect clinician in case where the adolescent and the parent disagree on treatment of advice), provision on information on health & lifestyle and involvement in treatment & adolescent participation, and in most cases on shared decision making and respect of privacy.

Countries within model A also have some policy on equity, for example, asking for the availability of translators, training of professionals in intercultural issues and/or availability of guidelines about interventions to improve school integration of vulnerable pupils.

Almost all countries have a quality management infrastructure consisting of e.g. guidelines for PC for screening young people on mental health issues (with the exception of Denmark) and five countries have guidelines/standards for PC professionals about adolescents' pregnancy.

A policy, legislation and/or guidelines for dealing with autonomy and confidentiality, for example the possibility to consult a doctor without parents knowing, was part of AHS in all countries. Undergoing an abortion without mandated parental involvement was possible in most countries (8/12), exceptions were Croatia, Czech Republic and Spain (Portugal was missing), most often always without sending a bill to the parents.

Process of AHS delivery

Most countries within model A (with the exception of Estonia and Germany) have access to AHS by means of ambulatory facilities related to risk taking behaviours (for example using alcohol) with formally trained professionals (with the exception of UK (England)). Most countries with model A also have specialized centres for adolescent sexual and reproductive health (with the exception of Czech Republic, Denmark and Germany). In Croatia, Finland (depends on municipalities), Germany, the Netherlands, Portugal, Slovenia and UK (England) oral conception is free of charge and in Croatia, Czech Republic, Germany, Slovenia and Spain no co-payment for birth contraception is needed. In most countries (data on Croatia, Czech Republic, and Spain is missing) the payment of abortion will be conducted by the insurance company or by national health services. Only in Estonia and Finland adolescents have to co-pay or fee for the use of mental health services.

In terms of continuity, more than half of the countries have a formal national policy to ensure that primary care providers are involved in cases of severe mental health problems and follow-up in cases of vulnerability. Croatia, Germany and Slovenia did not have such a policy, for example because of confidentiality, and in Portugal and UK (England) the policy is inconsistent. Information on comprehensiveness contains the availability of adolescent self-harm and suicide prevention and/or pregnancy programs. All countries have self-harm interventions available and seven countries have special programs for pregnant adolescents.

Model B: Basic policy on AHS

Countries have some policy on AHS, but the dimension for which policies have been developed differs between countries (Figure 4.2 and Appendix 8, Table 1b).

Countries: Austria, Belgium F, Bulgaria, Germany, Greece, Ireland, Luxembourg and Sweden

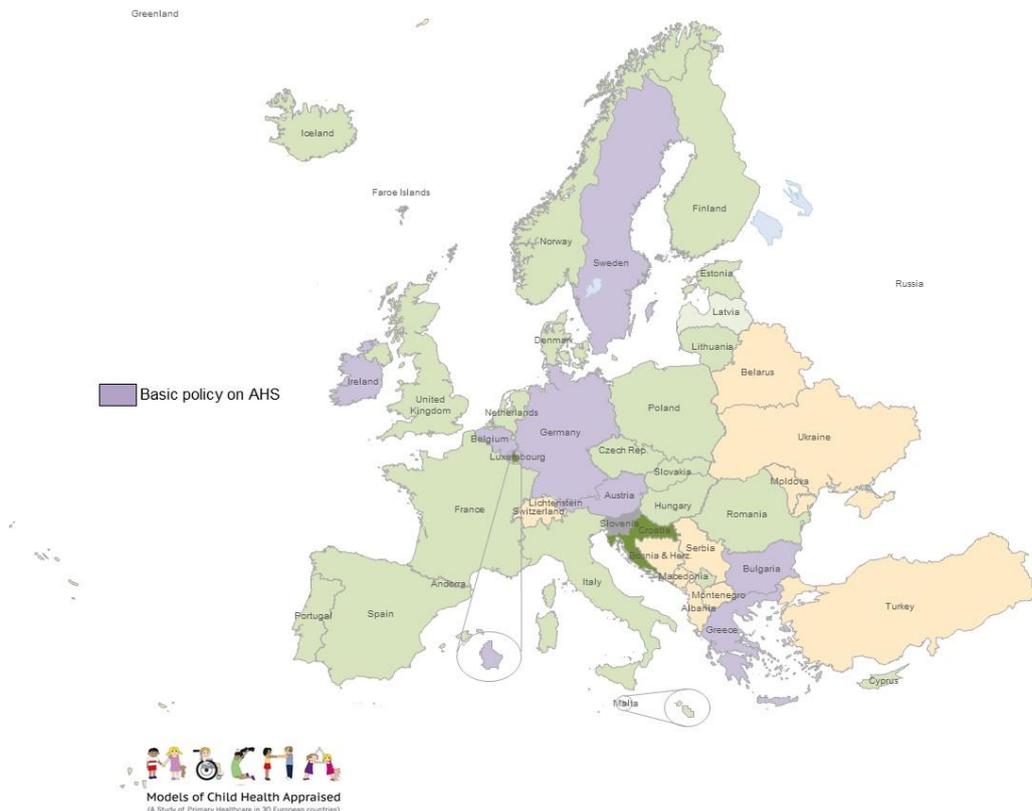


Figure 4.2: Countries with basic policy on AHS

Organizational structure

Belgium (French speaking), Bulgaria, Greece and Norway have a national policy to deliver adolescent friendly services. This policy was most often aimed at securing confidentiality (does the policy for example protect clinician in case where the adolescent and the parent disagree on treatment of advice, n=4), on shared decision making (n=3), provision on information on health & lifestyle (n=3), involvement in treatment & adolescent participation (n=3), respect of privacy (n=2).

Bulgaria and Ireland have the most extensive policy on equity. Most countries have a translator available (n=6), in some places trained professionals in intercultural issues (n=6), availability of guidelines about interventions to improve school integration of vulnerable pupils (n=4) and in selected or most casus policy or guidelines to encourage inter-professional meetings (n=4).

Some countries within Model B have a quality management infrastructure consisting of e.g. guidelines for screening young people on mental health issues in primary care (Bulgaria, Greece,

and Ireland). Only Ireland has guidelines of standards for PC professionals about adolescent pregnancy.

Countries have some policy, legislation and/or guidelines for dealing with autonomy and confidentiality (with the exception of Sweden). Half of the countries have guidelines for PC to deal with the assessment of adolescents' autonomy (Bulgaria, Ireland, Luxembourg, and Norway). Almost half of the countries have legislation or policy on confidentiality (Austria, Greece, and Luxembourg) or policy on right of children to refuse treatment (Austria, Ireland, and Norway). In most countries adolescents have access to health services or doctors without parental consent (with the exception of Bulgaria and Greece). Undergoing an abortion by an adolescent girl was possible in three countries (Luxembourg, Norway and Sweden), without mandated parental involvement, but not without sending a bill to the parents.

Process of AHS delivery

Five countries within Model B (with the exception of Bulgaria, Ireland and Norway) have some policy on access by having ambulatory facilities about risk taking with most often formally trained professionals. Most countries (with the exception of Ireland and Luxembourg) have specialized centres for adolescent sexual and reproductive health. Condoms are easily available in most countries, with the exception of Greece. Only in Norway and Sweden oral contraception is free of charge. Co-payments for birth contraception are needed in all countries. In five countries (data on Greece and Ireland is missing) the payment of abortion will be conducted by the insurance company or by national health services. In most countries (with the exception of Sweden) adolescents do not have to co-pay for the use of mental health services (data on Belgium F, Luxembourg is missing).

In terms of continuity, only Bulgaria has a formal national policy to keep primary care providers involved in case of severe mental health problems and follow-up in case of vulnerability.

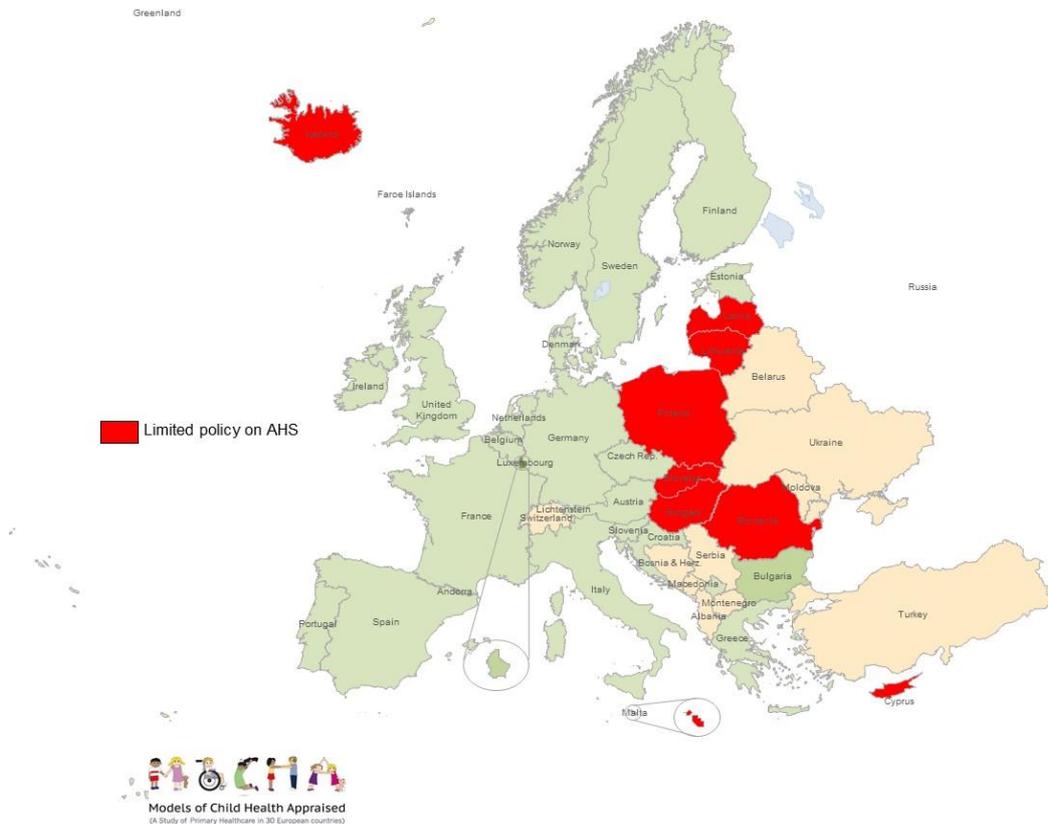
Information on comprehensiveness contains the availability of adolescent self-harm and suicide prevention and/or pregnancy programs. Almost all countries have self-harm interventions available (with the exception of Belgium F) and four countries have special programs for pregnant adolescents.

Model C: Limited policy on AHS

Countries in this model have no or a limited policy on AHS (Figure 4.3, Appendix 8 and Table 1c).

Countries: Cyprus, Hungary, Iceland, Latvia, Lithuania, Malta, Poland, Romania, Slovakia.

Figure 4.3: Countries with limited policy on AHS



Organizational structure

None of the countries within model C have a national policy to deliver adolescent friendly services.

Countries within model C have some policy on equity, some countries have a translator available (Cyprus, Iceland, Latvia and Slovenia), in some places (Malta, Slovakia and Slovenia) professionals are trained in intercultural issues and in most countries (Cyprus, Latvia, Lithuania, Malta and Poland) guidelines about interventions to improve school integration of vulnerable pupils are available.

Countries do not have a quality management infrastructure; only in Poland guidelines for primary care professionals about adolescents' pregnancy are available.

Countries have no policy, legislation and/or guidelines for dealing with autonomy and confidentiality (with the exception of Iceland, Lithuania). Only in Poland is there a policy on the right of adolescents to refuse treatment. In Iceland, Latvia, Slovakia and Slovenia adolescents have access to mental health services and/or can consult a doctor or gynaecologist without

parental consent. Undergoing an abortion by a 15 year old girl was not possible without mandated parental involvement and/or without sending a bill to the parents.

Process of AHS delivery

The majority of the countries within Model C have ambulatory facilities with formally trained professionals (with the exception of Poland and Slovenia) and/or specialized centres for adolescent sexual and reproductive health (with the exception Lithuania and Slovenia). Most countries have no equipment for mental health emergencies (with the exception of Cyprus, Romania and Slovenia). Oral conception is not free of charge (with the exception of Romania and Slovenia) and co-payment for birth contraception is needed in most countries (with the exception of Cyprus, Iceland, Romania and Slovenia). Co-payments or fee for use of mental health services is needed in Iceland, Latvia and Lithuania, but not in the other countries.

In terms of continuity, there is no formal national policy available to keep primary care involved in case of severe mental health problems, with the exception of Iceland and Slovakia. An appointment and a follow-up with a doctor in case of vulnerability is, depending on the situation and health problem of the adolescent, available in most countries (with the exception of Cyprus).

5 Conclusion and discussion

The main goal of this study was to explore the structure and process elements of European School Health Services (SHS) and Adolescent Health Services (AHS) and to assess which elements seem to be most beneficial for children's and adolescents' health. This main goal was divided into three objectives: 1) To explore the organization characteristics, service characteristics and health priorities of various models of school health services and adolescent health services in Europe; 2) To assess effects and outcomes of the various models of school health services and adolescent health services in the EU and EEA for children (≥ 4 years of age) and adolescents and 3) To assess the costs of the various models of school health services and adolescent health services in the EU and EEA for children (≥ 4 years of age) and adolescents.

In this final chapter, we present our overall conclusion (paragraph 5.1) and recommendations for policy makers in the area of organization of SHS and AHS (paragraph 5.2). Finally, we summarize our findings in some key messages (Paragraph 5.3).

5.1 Conclusion

Objective 1: To explore the organization, service characteristics and health priorities of various models of school health services (SHS) and adolescent health services (AHS) in the EU and EEA

The exploration of the organization, service characteristics and health priorities was based on the PHAMEU framework developed for the mapping of primary care (9). Within WP3 of the MOCHA-project, this framework is adapted for primary care for children and adolescents. The adapted PHAMEU framework consisted of the dimensions: governance, economic conditions, workforce, access, continuity, coordination and comprehensiveness. These dimensions were divided into essential features that were further detailed into indicators to measure the features of primary care dimensions.

In chapters 3 and 4 of this report, we have presented an overview of several characteristics (features and indicators) on which SHS and AHS in the EU and EEA are based. We first have compared the features and indicators between the 30 EU/EEA countries and focused on similarities (same values on indicator in about two third of the countries). This led to a basic model of SHS and of AHS in the 30 European countries. Secondly, we tried to cluster countries based on features and indicators; which countries shared more or less the same organization of SHS and AHS based on certain features and indicators. The basic models for SHS and for AHS included many features. Examples for SHS are the shared responsibilities between authorities for the organisation of SHS, the quality assurance, having some policies on school dropout and having a multidisciplinary team. For AHS examples are the existence of a policy on autonomy and confidentiality, a policy on access and use of guidelines (see paragraph 3.4 and 4.3 for a complete overview of the content of the basic models).

Regarding health priorities, all countries considered lifestyle-related issues to be a priority for pupils, e.g. physical activity, healthy eating and substance abuse. In particular SHS are involved in the development and implementation of specific programmes to improve these issues.

We first describe the organizational model for SHS; subsequently, we describe the same for AHS.

Organizational model SHS

Regarding SHS it was only possible to assemble features and indicators of countries within the dimensions of 'Governance' and 'Workforce'. This was because only these dimensions contained features and indicators that showed a relatively consistent pattern between countries. Based on these two dimensions we could cluster countries regarding their values for the features 'national policy on SHS', 'responsibility of authorities', 'quality assurance' and 'multidisciplinary collaboration'. This led to a cluster of countries with an extensive national policy on SHS (Bulgaria, Croatia, Finland, the Netherlands, Norway, Poland, Portugal, Sweden and UK (England) and UK (Northern Ireland)), with a basic national policy on SHS (Cyprus, Estonia, France, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg and Romania), with a limited national policy on SHS (Austria, Denmark, Germany, Greece, Hungary, Malta and Slovakia) and with no SHS at all (Czech Republic and Spain).

Organizational model AHS

Adolescent Health Services were clustered by organisational model in more or less in the same way as SHS; in other words, they gave similar answers on/descriptions of the features and indicators on equity in access, quality management infrastructure, confidentiality and autonomy. This led to a cluster of countries that we judge to have an extensive policy on AHS (Denmark, Finland, France, the Netherlands, Norway, Spain, UK (England), to a lesser extent Croatia, Czech Republic, Estonia, Italy, Portugal and Slovenia), with a basic policy on AHS (Austria, Belgium F, Bulgaria, Greece, Ireland, Luxembourg and Sweden) and a limited policy on AHS (Cyprus, Hungary Iceland, Latvia, Lithuania, Malta, Poland, Romania, Slovakia).

The results on clusters of countries regarding SHS and AHS need to be interpreted carefully since, since this classification has been based on intended policies and not on the policies realised in practice(9).

Relation between organizational models SHS and AHS

When we compare the countries that have an extended organizational model of SHS, we see that of these ten countries, five countries also have an extended organizational model of AHS (Finland, the Netherlands, Norway, Portugal and UK (England)). In contrast to countries with two extensive organizational models, there are also some countries that have a limited organizational model for both SHS and AHS: Hungary, Slovakia and Malta. Although we should not draw too firm conclusions based on only organizational models, this comparison does show that there are countries with an overall extensive national policy regarding SHS and AHS and countries with an overall limited national policy.

Objective 2: To assess effects and outcomes of the various models of school health services (SHS) and adolescent health services (AHS) in the EU and EEA for children (≥ 4 years of age) and adolescents

Our aim was to relate the models resulting from our first objective to health outcomes of children and adolescents per country in the EU and EEA. We concluded that this was impossible because a sufficient amount of reliable process and outcome data was not available. Therefore, based on the analyses of the data as obtained, the research team decided not to report on the associations between models and health outcomes for the following three reasons.

Process data

Few data were available on process outcomes in Europe. In order to relate the organizational models to health outcomes, process data are necessary: structure measures (such as workforce) have an effect on process measures (better access to care), which in turn affect outcome measures (e.g. healthy lifestyle behaviour). Without these process outcomes, it is entirely unclear whether health outcomes can be attributed to the way in which SHS is organized. No databases were available on process outcomes that covered the majority of the 30 countries or most of the age groups of children and adolescents. In addition, it seemed very difficult to ask country agents about process outcomes because of the differences regarding process outcomes within a country.

Health outcomes data

Also regarding health outcomes data, only a few databases were available that covered the majority of the 30 countries for the relevant age groups of children and adolescents. In addition, the dataset that seemed most appropriate for health outcomes was the Health Behaviour in School-aged Children (HBSC) study, which is entirely populated with self-reported data. Although we assessed whether outcome data was associated with our organizational model, we concluded that no clear pattern could be distinguished.

Because we were not able to relate the models from our first objective to health outcomes of children and adolescents in Europe, we have mapped the features and indicators of our models to current standards of SHS and AHS. In the following text, we first present the comparison of our findings with the available standards: the WHO framework for SHS and the WHO AHS standard.

Quality of SHS compared with the WHO standards for SHS

The most important features and indicators as acknowledged and also supported by the European framework for quality standards in SHS and competence for school health professionals of the WHO(19) are:

- Intersectoral, inter-level and national framework involving ministries of education and health (referring to standard 1 and 3 of the WHO standard)
- Equity and access (standard 2)
- Respecting and applying quality assurance (standard 2 and standard 6)
- Multi- and interdisciplinary collaboration (Standard 4)
- Task, roles and competence of SHS professionals (Standard 5)
- Stakeholders involvement (standard 6)
- Data management (Standard 7)
- SHS packages (Standard 6)

Intersectoral, inter-level responsibility and facilitation of SHS (Standard 1 and Standard 3)

In the majority of the countries, the development of the 'content and scope', 'workforce' and 'funding' of SHS is a shared responsibility of national and local, and health and education authorities (Standard 1). The involvement of both sectors and both levels (national and local) is important. National health and educational authorities may provide political and financial

support and facilitate the development and implementation of SHS. Regional or local health and educational authorities can tailor the service to the needs of the local population and thereby increase responsiveness. Involvement of both levels may therefore take the best of both but needs also coordination and good dialogue between authorities (78). In addition, almost half of the countries had a policy to ensure that SHS facilities, equipment, staffing and data management systems are sufficient to enable SHS to achieve their objectives.

Equity and access (Standard 2)

Most countries have SHS, meaning, theoretically, that most pupils have access to SHS. Countries that did not have SHS were the Czech Republic and Spain. In the majority of the participating countries no great variations in SHS between regions exists and/or national regulations for SHS have to be followed, which may increase equity in access.

The equity in access in our study was further operationalized by asking for policies on school drop-outs and on vulnerable pupils. Half of the countries had a comprehensive policy: in most cases this regarded as inter-professional meetings to discuss school absenteeism and drop-out, guidelines for schools to improve integration and education of pupils and offer the possibility for vulnerable pupils or pupils who drop out to have an appointment with the doctor.

The accessibility of SHS may be influenced by the organization of SHS: SHS can be school based, a distinct structure in the health system, or offered by providers in primary care. In most countries SHS provision is a mixture of structures. Baltag & Levi (2013) hypothesized that the proximity of SHS (school-based SHS) may increase accessibility of SHS(6).

Quality assurance (Standard 2)

Quality management infrastructure contains a number of mechanisms that need to be in place to assure adequate quality of care. In more than half of the countries, quality management infrastructure is safeguarded by working with clinical recommendations, regulation and/or standard sets (principle effectiveness of standard 2). In most of these countries, the quality recommendations or standards were performed by SHS themselves or by external inspection. Publication of the results of the quality assurance for the public was less common in countries. Although some standards exist, we did not specify the type or aim of the existing standards and therefore have no information on the quality of the standards.

Collaboration (Standard 4)

The tasks of SHS are very complex and comprehensive and therefore require good collaboration, for example with other primary health care professionals. Standard 4 of the WHO was aimed at the collaboration between SHS professionals, teachers, school administration, parents and children and local community actors (including other health care providers). The current study focused on cooperation between SHS and other forms of PC services, for which in about half of the countries formal national recommendations were formulated. Some countries have regulations for the exchange of information between SHS and other health care professionals, and some countries have formal agreements on cooperation and division of tasks between the different services. Half of the countries do have formal recommendations that support inter-professional working within SHS.

Tasks, roles and competence of SHS staff (standard 5)

Standard 5 includes SHS staff having job descriptions, competences and a commitment to achieve SHS quality standards. In the current study this standard was operationalized by paying attention to composition of the SHS team, existence of job descriptions, knowledge and skills of SHS providers and ratio of SHS provider-to-pupil.

In the vast majority of the participating countries SHS is provided by a multidisciplinary team of health professionals, consisting most often of at least a school nurse and a school doctor. In almost half of the countries this team is supplemented by other types of health professionals. We found no norms in the literature regarding the composition of the most effective SHS teams, but found so regarding the important role of the school nurse (79).

SHS providers have clearly defined and written job description in more than half of the countries. We do not know whether this description distinguishes only task and roles of SHS providers or also with respect to primary care, which is – according to the WHO (2010)(78) – also an important aspect of a good functioning SHS.

Baltag & Levi (2013)(6) hypothesized the importance of dedicated school health personnel, referring to experienced and trained health care providers who are also perceived by children and adolescents as familiar and accessible. The knowledge and skills of SHS providers are acknowledged as important factors to enable the SHS to function optimally (19). In only one third of the countries SHS providers were reported to be adequately trained and in only half of the countries specialization in SHS is required for employment in SHS. SHS providers in one third of the countries have access to supervision and feedback on their performance.

In most countries information on the ratio of SHS provider-to-pupil was not available or depended on the size of school and was therefore not easy to translate to a national level. Countries all indicated that there is a certain or severe shortage of SHS personnel. The American Academy of Paediatricians recommends a fulltime school nurse in every school, a ratio of one school nurse per 750 students and a strong partnership among school nurses, school physicians, other school health personnel and paediatricians (79).

Data management (Standard 7)

Early access of SHS providers to up to date information is defined as a criterion in standard 7 to achieve high quality of care. About two thirds of the countries have a policy for schools to keep and update information concerning the health of children and about one third have policy on easy access to this information.

Stakeholders' involvement (standard 2, 4 and 6)

A policy aimed at the involvement of stakeholders is a topic included in several WHO standards. We found that stakeholders' involvement is most often only weakly developed, especially as it regards involvement of medical insurers and parents. Medical providers and children were more often, direct or indirectly (e.g. identifying needs of children by epidemiological data) involved. A more active involvement of families, caretakers and teachers was mentioned to be a challenge by most participating countries. The added value of involving stakeholders is increasingly being recognized in literature(33,78), in particular the involvement of children and adolescents (10,13).

Packages of SHS (standard 6)

A wide range of services is provided by SHS in the participating countries. In half of the countries SHS providers are involved in medical care; most often in the management of pupils with chronic illness and care in the case of injury or acute illness. Preventive care consisted in almost all countries of screening, disease prevention and mental health. Differences exist however in the types of screenings which are performed. Visual acuity and dental screenings were performed by most countries and STI screening was less often performed. Disease prevention consists of vaccinations, referrals for health conditions, infection control, surveillance of school's hygiene conditions and emergencies handling in about two third of the countries. In addition, in more than two thirds of the countries schools have a national policy on Health Promoting Schools, indicating that in many countries a healthy setting for living, learning and working is seen as important.

The part of standard 2 'SHS respect the principles, characteristics and quality dimensions of child- and adolescent-friendly health services and apply them in a manner that is appropriate to children and adolescents at all developmental stages and in all age groups' will be discussed in the AHS-section.

Discussion and implications regarding SHS

One of the most important findings is that of the 30 countries, all except two have SHS. With regard to the countries which do have SHS, no great variations seem to exist between regions in the majority of countries, so SHS in these countries seem to be equally accessible for all children and adolescents. When comparing with the 'goldstandard' of SHS, the WHO-framework for quality standards in SHS and competence for SHS professionals, the majority of countries do well by having a shared responsibility between national and local, and health and education authorities for the development of the 'content and scope', 'workforce' and 'funding' of SHS. More than half of the countries also do well regarding quality management infrastructure and by having a multidisciplinary team and regarding having a policy for schools to keep and update information concerning the health of children and having policy on easy access to this information. Finally, in more than two third of the countries, schools have a national policy on Health Promoting School.

The two major concerns for European SHS when we comparing with the WHO-standard are the following. A first major concern is the lack of policies to ensure that SHS facilities, equipment, staffing and data management systems are sufficient to enable SHS to achieve their objectives in most of the countries. This is also expressed in the feedback from the country agents that in most of the countries: 1) there is some or a severe shortage of SHS professionals, 2) SHS providers are not adequately trained, 3) in only half of the countries specialization in SHS is needed for SHS professionals. The second major concern regards collaboration between SHS professionals, teachers, school administration, parents and children, and local community actors (including other health care providers). Only about half of the countries have formal recommendations on collaboration between SHS and other forms of primary care or on interdisciplinary working within SHS. In addition, in only half of the countries, the multidisciplinary team – often consisting of a school nurse and a school doctor – is supplemented by other types of health professionals. Finally, involvement of families, caretakers and teachers in providing SHS is lacking or difficult to realize in most of the countries.

Quality of AHS compared with the WHO Adolescent friendly health services and care (AFHSC)

The predominant current models of quality health care(1,2,19,80,81) refer to the framework of *adolescent/youth friendly health services and care* that has been jointly developed by WHO UNICEF and UNFPA some years ago. This framework has also been validated by young people themselves(3), who have been surveyed and asked about what, in their opinion, were the main ingredients of fair and high quality health services and care. The main criteria that are mentioned by young people are the following:

- Accessibility: flexible schedule, possibility to drop in, location (public transportation), affordability (financial coverage), equity
- Staff attitude: respectful, supportive, empathetic, trustworthy, honest
- Communication: developmentally appropriate, understandable, active listening, provision of information
- Staff competency and skills, both technical and medical (health care): comprehensive and holistic approach (multi professional: e.g. providing curative and preventive services in the broad area of adolescent health, including mental health, substance use, sexual & reproductive health, etc.)
- Guideline-driven care: confidentiality, autonomy, privacy, continuity of care
- Age appropriate environment: clean and teen-oriented physical space, health information, access to internet, pamphlets and leaflets
- Involvement in health care, participation, share-decision approach, continuity of care
- Equity and respect of adolescents' rights (CRC (82))
- Link with the community, networking approach, community support

Existing AFHSC and guidelines

Thirteen out of 30 countries have developed national guidelines to ensure AFHSC. However, it is unclear whether the guidelines are applied and to what extent. In addition, more than half of the countries (16/30) have set up specialized centres delivering adolescent health care; , although these are mostly in urban areas, and not nationwide. Some tackle specific issues only (such as sexual & reproductive life or mental health), whereas others are more broadly oriented. Many are run by multidisciplinary teams (N=14), and in eleven countries, the lead professionals have received formal training in the field.(1,83,84)

Ethical issues: rights and confidentiality

Young people value confidentiality and privacy as of utmost importance, and this applies to all countries of the world. (2,4,85-87) Indeed, when it comes to sensitive issues such as sexual activity or contraception, risk-taking, problematic eating patterns or substance use, young people need to be sure that the health care professional will not disclose their information to anyone, unless the situation is life threatening.

The right to confidentiality is linked to the young person's decision-making capacity (competence). Health care providers are not necessarily well equipped to gauge the extent to which younger adolescents have such a capacity.(88) Thirteen out of the 30 countries surveyed

indicated the existence of a formal legislation or policy of confidentiality, and only nine provide some guidelines as how to assess the young person's competence. Confidentiality not only concerns the content of a given encounter but also the right to access to health care without parents knowing. In twenty countries, adolescents have the right to consult a doctor without the parents (or any substitute) knowing, and in around the same proportion of countries, the adolescents have the right to choose their doctor themselves (N=18). Finally shared decision-making (e.g. the right to refuse a treatment or choosing another alternative than the one preferred or chosen by the parents) is as well a right for young patients, and around half of the countries (N=14) signalled the existence of such a policy.

Access to health care

According to the WP1 report "Current models of child primary health care"(89), most European countries provide some kind of sustainable insurance systems that cover the health care expenditures of children and young people. The issue of access of adolescents to health care is thus more linked with their own knowledge of what exists and the extent to which they feel free to consult and expect to get quality health care, This applies particularly to so-called vulnerable adolescents, such as migrants and adolescents from deprived socio-economic background or "drop-out" adolescents living on the street. Half the responding countries have developed policies or strategies that aim to improve access to care for vulnerable adolescents. In half of the countries only (N=16) it is possible for adolescents in such situation to consult a doctor. Half of the countries are able to offer translators if needed, at least in some regions, and to provide professionals who have an expertise in cross-cultural issues. Moreover, just half of the countries (N=15) have policies which encourage the inter-professional approach to disruptive behaviours of adolescents having left or being about to leave the mainstream educational system.

Specific areas; access to mental health and sexual & reproductive health

The issue of mental health is currently of growing importance in many regions of the world; this includes behavioural disorders, violence, depression and self-harm/suicide.(21,84,90,91) While the majority of countries (N=23) have some kind of suicide prevention programme and a similar number are able to provide same-day referral appointment for suicide or several mental health breakdown, only a third (N=10) of the surveyed countries provide guidelines to primary care physicians on screening for mental health problems and disorders, and only seven provide some systematic screening of risk-taking behaviour in ambulatory settings.

Access to contraception is generally good. In all responding countries (n=28) it is possible to get emergency contraception. Half of the countries (n=16) there are multiple opportunities for a young person to obtain emergency contraception, for example in a pharmacy, a health clinic, the emergency department of a hospital or via a primary care practitioner. All countries have multiple options to obtain pregnancy tests and in most countries (n=22) condoms are easily available. Although only nine countries provide oral contraception free of charge adolescents can obtain such contraception easily in most countries. More than half of the surveyed countries (N=17) have centres which provide counselling and care in the specific area of sexual and reproductive health. However, as far as the primary care level is concerned, it is distressing to note that only six countries have specific guidelines or policies as how to address the issue of adolescent pregnancy.

The results were also compared across the various organizations of delivery of paediatric primary care, e.g. the leading professional in charge being a paediatrician, a family physician or both (see WP1 report “Current models of child primary health care”(89)). We found no significant relation in this respect: this is probably because there are indeed many other aspects that govern the adoption of guidelines in the field of adolescent primary care.

Discussion and implications regarding AHS

The overall impression from these results is that, although around half of the surveyed countries have adopted policies or guidelines that secure to some extent an equal access to care for most adolescents, including those more vulnerable, many regions or countries of the European Union or the European Economic Area lag behind the current standards of quality health care. Only a minority, for instance, are equipped to identify and respond to mental health emergencies and life-threatening behaviour. In addition, while many countries support the concept of confidential health care, only a small number provide guidelines to professionals on how to address adolescents’ competence to make appropriate decisions. The issue of inter professional care also seems poorly addressed in many countries, despite the fact that many adolescent bio-psychosocial health problems require a collaborative global approach.(80) While it is difficult to measure the impact of this gap in the delivering of excellent care to adolescents, there is some evidence that good quality primary care services make a positive difference in terms of the health of young people(92-94).

One further aspect of the result pertains to the extent to which there exist some congruence within each of the surveyed countries, between the different aspects of primary care to adolescents tackled. Only a minority of countries have a series of policies and guidelines which guarantee the rights and the equal access to primary care while, at the same time, providing a fair coverage of mental health issues and crises as well as issues such as contraception or pregnancy.

Some caveat must be kept in mind regarding these. These data presented are based on the report of country agents, who have collated information based national statistics or documents as far as possible, but nevertheless a bias may exist. In addition, the size of the questionnaire has clearly not allowed the involved researchers to cover all the specific aspects of adolescent health care.

Objective 3: To assess the costs of the various models of school health services and adolescent health services in the EU and EEA for children (≥ 4 years of age) and adolescents

We looked at the costs and cost-effectiveness of SHS. In eleven countries, estimates of expenses could be calculated. We were also able to compare these figures to the methods of school healthcare delivery on a population level. Since SHS spending estimates for the EU and EEA could not be found elsewhere, this estimate is a first step in comparing the economic conditions of SHS across the continent.

Costs

We found large differences between countries regarding the costs of SHS, with Belgium spending more than \$220,000 per 1,000 pupils, while Portugal spends less than \$11,000 per 1,000 pupils. This high number for Belgium is a result from a high ratio of doctors to pupils, but also high

wages and is highly dependent on the salary estimate used (GP or specialist). This result is somewhat implausible, as doctors in school health services in Belgium earn considerably less than other doctors, the lower estimate of \$114,255 is more plausible, but probably still too high. (95) In general, in countries where dedicated school doctors are available, working alone or in a team with nurses, the calculated SHS expenses are higher, this is the case in Sweden, Finland and Bulgaria, with Malta being the exception, as the number of pupils per doctor or nurse are very high compared to the other countries. Doctors' salaries generally being higher than nurses' salaries explains this trend, in particular as we only include workforce costs. Yet, Latvia reports a low number of pupils per nurse (100 pupils), resulting in the second highest expenses in the included countries, even though no school doctors are included in the analysis.

Workforce spending

We initially hypothesized that workforce spending is the most important driver of school health expenses. The treatments in SHS are generally inexpensive: no expensive drugs are paid from this budget, nor does SHS need the expensive facilities often found within hospitals. Overhead costs were also not considered, which is not known for the SHS specifically. Depending on the organisation of SHS, there might be significant differences: a doctor or nurse physically residing in a school could use the organisational structure of the school itself, which then would be paid for from the education budget. A health centre outside of the school might be more expensive regarding overhead but may be more efficient regarding workforce allocation. Additionally, a major limitation of this study is that no healthcare personnel other than doctors or nurses were included. School-based dentists and psychologists are present in some European countries and may be more adequately trained for the timely recognition of specific health problems, such as poor dental hygiene or psychological issues.

SHS provider-to-pupil ratio

Only twelve out of the 30 participating countries, reported nurse-to-pupil or doctor-to-pupil ratios, which may indicate that many countries do not have clear regulations regarding the staff allocation within the SHS. Within a country, the absence of clear staffing regulations could result in regional quality differences if budget allocation is primarily influenced by local authorities. Even for the countries reporting these healthcare-provider-to-pupil ratios, the actual staffing may be overestimated, as many countries also report staff shortages.

SHS expenses

While looking into the SHS expenses, a lack of data was apparent. There are no data detailing the overall costs of the system and the flows of money are difficult to specify and quantify. In addition, the remuneration data we used were for doctors in general: GPs and specialists, in some cases self-employed and in some cases salaried. This will in some countries result in an overestimation of costs, with Belgium being the prime example. The correctness of these estimations will vary by country, as there will be differences in overhead costs, costs of other health professionals in SHS and there might be a significant difference in school doctors' wages compared to the average and school nurses' wages compared to hospital nurse wages. Since it is impossible to account for all these variables, we opted to generalize the results and use the same method for all calculations, so as to be able to compare the results for the different countries. For further research, it would be highly beneficial to determine the real salaries for

health professionals working in SHS and check whether the reported theoretical workforce ratios are upheld in practice.

When looking at the models of school health governance and the countries for which we were able to estimate SHS expenditure, countries with extensive governance do not show differences compared to countries with a basic national policy. Countries with a limited governance model spend relatively little on SHS, but countries like Poland and Portugal, both spending relatively little on SHS, have extensive governance. The countries that indicate that they fund SHS as general healthcare (Finland, Malta, Estonia, Iceland, Poland and Portugal) are in the lower 50% of health spending, apart from Finland. The countries that have an alternative way of funding SHS (Belgium, Latvia, Sweden, Bulgaria and Austria) are all in the upper 50% of spenders on SHS, except for Austria, which also is in the lower 50%. SHS expenditure does not seem to influence accessibility or coverage of SHS, care coordination and comprehensiveness of care.

Currently, little is known regarding the cost-effectiveness of the presence of dedicated healthcare professionals in schools in Europe, while there is some data for the situation in the US, where school-based health centres were found to be cost-saving for society and may aid in reducing inequalities in healthcare (54). Absence of information on overall spending within SHS makes it difficult to advice on the affordability and cost-effectiveness of specific interventions that could be part of SHS, since the relative budget impact is impossible to calculate. Two main angles for further research could focus either on a top-down, nation-wide analysis on the expenses and associated societal value of SHS, or on a bottom-up analysis of the costs and effects of specific organisational structures, be it a specific school or a municipality. If more is known about the baseline costs, comparative cost-effectiveness studies can aid in gradually improving SHS, while maintaining current budgets.

Expenses AHS

The method used to estimate SHS expenses, could not be used for AHS, as no workforce estimates were available from the MOCHA questionnaires. We investigated the possibility of extracting the data from public data sources, such as the OECD or Eurostat. These could be either primary care, or preventive care expenses. Unfortunately, no data were available where we could distil the age categories to a degree that could support an estimation of costs within this sector.

For further research, looking at the actual use of preventive and primary care by adolescents would be interesting. Furthermore, extending this with resource use and remuneration data, could support a very credible estimation of AHS expenditure. Then, health technology assessment of specific interventions could also be performed by estimating or measuring long-term outcomes and linking this to the costs.

5.2 Recommendations

Recommendation 1 SHS and AHS

European countries should not only invest in more SHS and AHS professionals but also in adequately trained SHS and AHS professionals to robustly address the specific needs of school aged children and adolescents:(1-5) For example, AHS professionals should be trained in communication skills; basic skills in the field of eating disorders, substance use, or contraception and STIs should be mastered by practitioners seeing adolescents both in ambulatory settings or hospitals.

Recommendation 2 SHS

European countries should invest in collaboration between SHS professionals and education professionals and other primary care professionals. It might be hypothesized that particularly in the case of children with chronic disorders or multimorbidity, effective collaboration between SHS and primary and secondary care may offer a breadth of experience and optimize treatment, and thereby improve educational and health outcomes (6-9). In prevention and health promotion, collaboration between SHS and the public health sector (but also with parents and adolescents, see recommendation 5) may lead to more integrated and coordinated care, which can result in accessible and responsive care (8,10).

Recommendation 3 SHS

More involvement of families (both parents and children/adolescents) in SHS policy is needed. Active involvement of parents and children/adolescents in the design, planning, implementation and evaluation of services is of great importance for an efficient and effective SHS(10-12). A participatory approach involving children and adolescents focusing on the necessary conditions to reduce risk factors and enhance young people's health is seen as a useful way of optimally matching the policy to the needs and possibilities of children and adolescents(11,13).

Recommendation 4 AHS

Paediatricians and primary care providers, especially those involved in scientific organizations or in public health activities, should advocate and sensitise their colleagues and policy makers to the importance of the health of adolescents, and the fact that the adoption of good lifestyle habits during this period will profoundly affect their health for life. Addressing health-compromising behaviour, and supporting healthy habits is the responsibility, among others, of adolescents' primary care providers.(14-16)

Recommendation 5 AHS

Many European countries should develop policies and strategies which improve access to adolescents in vulnerable situations . This is particularly important in the area of mental health and sexual and reproductive health. Schools, ambulatory settings and hospitals should offer easily identified, accessible, comprehensive health care and a culturally appropriate approach, particularly given the number of migrant adolescents living in EU and EEA countries.

Recommendation 6 AHS

Finally, any good supply of services will not work effectively if young people do not obtain adequate information. The education and the health care systems should improve their communication strategies, to assist young people in understanding their rights and responsibility in the domain of health, and how and where to access to adequate care.

Several actions should take place to improve SHS and AHS, the findings as reported may help policy and decision makers in the field of paediatric primary health care and school health services to improve the quality of health care delivered to school children and adolescents. This could in particular regard countries that showed to have a weak corpus of policies in the field of school health services (Austria, Denmark, Germany, Greece, Hungary, Malta, Slovakia, Czech and

Spain) and/or in the field of adolescent health (e.g. Cyprus, Hungary Iceland, Latvia, Lithuania, Malta, Poland, Romania, and Slovakia).

5.3 Key messages

Value of this project

This project has yielded a comprehensive overview of the structure and process of SHS and AHS across the European Union, showing that systems vary considerably but that some more generic models can be discerned if looking to governance. This provides many options for countries investigating alternatives for their current system. With this overview, it is possible for countries to see how other countries have organized parts of the SHS and AHS and which options are preferred by most of the countries.

Comprehensive overview, but no comprehensive SHS and AHS models

We were able provide a rather comprehensive overview of the SHS and AHS in the various EU and EEA countries, but could only define SHS and AHS models based on a limited set of features and indicators. The variation between EU and EEA countries is therefore rather large, but countries also have a number of shared good practices and a number of shared concerns.

Adequacy of adjusted PHAMEU framework

Our adjusted PHAMEU framework showed to be useful for mapping the organization of SHS and AHS in the EU and EEA by use of its features and indicators. The PHAMEU framework seems to allow the assessment of major dimensions of the complexity of SHS and AHS across the EU and EEA. By using the adapted PHAMEU framework we have received a nice full overview of the organization of SHS and AHS in the EU and EEA.

At the same time, the adjusted PHAMEU framework has some caveats. The framework should be expanded with questions on the contents of local and regional policies to provide insight into policy on a local or regional level. In addition, the framework assigns no value to the individual features and indicators, even though features and indicators seem to vary in importance.

Parallel to the work of WP3, WP1 has also focused on adapting the PHAMEU framework in such a way that the framework is suitable for exploring primary care for children and adolescents. Both the WP1 and WP3 processes show similarities in the desired adjustments of the PHAMEU framework. Integrating both processes into a final adapted PHAMEU framework is work in progress.

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Appendix 1-Description of SHS

This document is an explanation of the definition of School Health Services of Baltag et al. It gives the boundaries of which school health services are included in MOCHA's WP 3 "Effective Models of School Health Services and Adolescent Health Services project". We did not perform a review, but used Baltag's review results to specify our field of study. The definition is not fixed and may be adapted in the course of the project if necessary.

- 1) General definition of School Health Services (33): "Health services provided to enrolled students by health care and/or allied professional(s), irrespective of the site of service provision; the services can focus either on a personal level or a non-personal level of student care and should be mandated by a formal arrangement between the educational institution and the health care organization/provider."
- 2) The following condition was added to Baltag's original definition: the services can focus either on a personal level or a non-personal level of student care. An explanation of the added condition is provided in the text below, together with the explanations of the other terms in the definition.

A. *Provision to enrolled students*

School health services (SHS) are aimed at enrolled students, i.e. students on a school's list, following any officially organized training offer of the school, such as a full school year of education, a short term course, a sports festival, etcetera. School health services can be provided to the students as individuals or in a group with other students. Services aimed at individuals as well as groups can use personal and non-personal methods (see C). SHS aimed at individuals can depend on the needs of an individual pupil. Several individual level factors, like interpersonal violence, diabetes, adolescent pregnancy, might influence educational outcomes (33). Services on the individual level, such as school psychologists, therefore need consideration in the package of health services provided by schools. Groups can be either universal (all pupils of an entire school) or selective (e.g. pupils at risk for a certain health problem). SHS aimed at groups are often focused on prevention.

B. *Health care and/or allied professional*

School health services are provided by a health care and/or allied professional. In order to provide appropriate and professional health services that are effective, schools should rely on the expertise of professionals. Melo et al. (2013)(96) concluded that schools play an important role in the quality of health of adolescents, however, they need the help of professionals. A large-scale survey conducted by WHO (2010)(40) on SHS showed that the most important *health care professionals* that are involved in the provision of health services are school nurses, school doctors, psychologists, social workers, dentists, physiotherapists, nutritionists, health promoters and health care specialists such as pediatricians or gynecologists. *Allied professionals* are also indispensable for SHS, however, they have to collaborate with a health care professional to be relevant for school health services. These are no health care professionals, but trained in providing a specific service. For example, a school health program on sexual development given by a person who is trained in providing sexual education to adolescents, and is provided in collaboration with a health care professional, is a school health service. Such a collaboration between the two types of professionals can increase the effectiveness of SHS. In 2012 the NHS Confederation of England strongly recommended that multi-professional health teams working together at schools should become the norm(97).

C. *Formal arrangement, irrespective of the site*

School health services are mandated by a formal arrangement between the educational institution and the health care provider, who can be either employed by the school itself or by an external organization. The difference between a formal and non-formal arrangement relies on the initiation of the service provision: a formally arranged service is initiated by the school, whereas a non-formally arranged service is initiated by another source than the school. Services that are initiated by the school can still be provided outside of the school grounds. In other words: a formal arrangement is irrespective of the site of service provision. For example, a guideline for safe school playgrounds posed by a national organization, is not yet a health service, unless schools and health professionals adopt the guideline for creating a healthy environment. A workshop organized by the school and held at a child and family health center is a formal arrangement initiated by the school, and therefore a school health service.

D. *Personal or non-personal focus*

In addition to the definition given by Baltag, Pachyna and Hall (2015)(33), it should be notified that school health services can focus either on a personal level or a non-personal level (i.e. on the context). SHS that focus on a personal level are aimed at students (both individuals and groups) and strongly rely on primary care. For example, care by school psychologists is targeted at personal level. SHS that focus on a non-personal level are aimed at the context (i.e. school climate). For example, in order to stimulate healthy dietary behavior, a school can hire dietitians to give advice on healthy nutrition offered in the school canteen. Such a service primarily targets the school environment, and is thus focused on the non-personal level.

- 3) Clarification of the definition using a decision chart. To get a better understanding of the definition, we provide a decision chart in Figure A1.1. One can follow this decision chart from left to right to decide whether a specific health service is a school health service or not according to this definition,:

 1. First, one should determine whether the health service is aimed at a group or an individual; both can be a SHS according to the definition.
 2. Second, one should determine whether the service is focused at a personal or non-personal level; both can be a SHS according to the definition.
 3. Third, one should determine whether the service is arranged formally or non-formally; only formal arrangements can be a SHS according to the definition.
 4. Finally, one should determine whether the service is performed by a health care or allied professional or not; only a service performed by one of the two mentioned professionals is a SHS.

The emphasized boxes in the chart represent the determination paths to include a service as a SHS; the other boxes represent the determination paths to exclude a service as a SHS. Some examples:

- *Routine health assessments/screening*
Determination path: Group → Personal → Formal arrangement → Health care professional;
SHS = yes;
- *Physical activities at community center provided by volunteers*
Determination path: Group → Personal → No formal arrangement → No health care professional; SHS = no;

- *Dietician advising on healthy food in school canteen*
Determination path: Group → Non-personal → Formal arrangement → Health care professional; SHS = yes;
- *National organization giving advice on safe school playgrounds*
Determination path: Group → Non-personal → No formal arrangement → No health care professional; SHS = no;
- *Consultation hour at school by school psychologist*
Determination path: Individual → Personal → Formal arrangement → Health care professional; SHS = yes;
- *Therapy sessions outside school provided by individual psychologist*
Determination path: Individual → Personal → No formal arrangement → Health care professional; SHS = no;
- *Physiotherapist's advice on individual adjustments for wheelchair users*
Determination path: Individual → Non-personal → Formal arrangement → Health care professional; SHS = yes;
- *Parents of diabetic student asking the school to adjust canteen food supply*
Determination path: Individual → Non-personal → No formal arrangement → No health care professional; SHS = no;

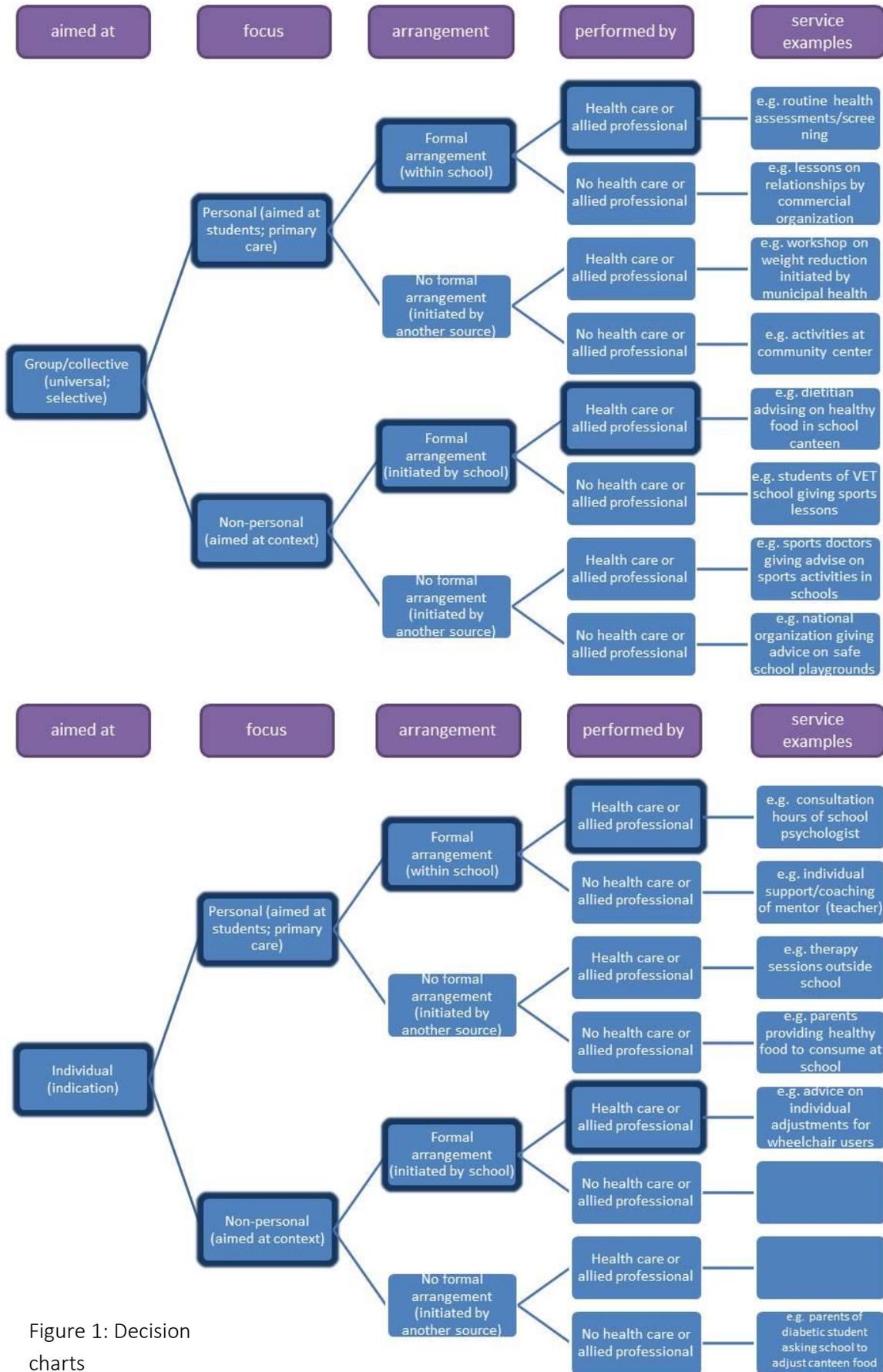


Figure 1: Decision charts

Appendix 2 - Description of AHS

Taking into account the tasks of WP3, which are to explore the organization, characteristics and health priorities of various models of adolescent primary care services in Europe and to assess their effects and outcomes, this document describes the general definition of adolescent primary care services within the MOCHA WP3 package; with its inclusion and exclusion criteria namely:

- A few definitions (age range, primary care),
- A description of the types of primary care included
- A list of settings wherein primary care services potentially can be provided to adolescents
- A list of health professional that can potentially serve

A few definitions

Age range: There is an agreement that WP3 will focus on adolescents aged 10 to 18 years, 18 years being the usual limit used by paediatricians and paediatric facilities (98) and by the UN Convention of the Rights of the Child (99). However, in some countries, the available data may extend up to 20 years.

Primary care includes all first point of contact (without referral) with the health care system. Generally speaking, a primary care service addresses the main health problems of adolescents in a given community, and provides promotive, preventive, curative and rehabilitative care, including education and health promotion, family planning; immunization and appropriate treatment of common diseases and injuries (38,100). A health professional should be part of the primary care service.

Types of primary care included:

Adolescent primary care services include the care of common adolescents' disorders, (1) acute situations (e.g. in injuries) as well as (2) chronic and rehabilitation care. (3) Prevention and health promotion are an integral part of adolescent health care (30,80,100), and as such, curative and prevention activities should not be seen as separate entities.

1. Emergency care
Can be defined as a service which is provided for an unexpected and acute situation which jeopardizes the adolescent health or life. It is usually provided onsite and then in a hospital (intensive care units not included) or a facility opened 24h. a day.
2. Chronic care and rehabilitation:
With the improvement of treatment and survival, more and more adolescents suffer from a chronic disease, defined as any health conditions lasting for more than six month and needing treatment (22). These situations necessitate a follow-up treatment taking into account not only the particularities of the basic chronic disorder, but also the adolescents' primary health needs (e.g. mental health, contraception, dermatology etc).
3. Prevention and health promotion:
Disease prevention not only covers measures to prevent the occurrence of diseases, such as risk factor reduction, but also aims to arrest its progress and reduce its consequences once established (101). Primary prevention is directed towards preventing the initial occurrence of a disorder. Secondary and tertiary prevention seeks to arrest or retard existing disease and its effects through early detection and appropriate treatment or to reduce the occurrence of relapses and the establishment of chronic conditions through, for example, effective rehabilitation. Again, they are an integral part of primary care.
Health promotion is defined by the Ottawa conference as "the process of enabling people to increase control over, and to improve, their health" (102). This concept stresses the

importance of confidentiality and of adolescents' participation in any decision regarding their health (88).

Types of primary care settings

Primary health care to adolescents can be provided in various settings.

- **Public services**
Adolescents receive primary care within a solo or group service which is staffed by primary care physicians. In many countries, consultation in public primary care centres is partly or fully covered by insurance or the government. These practices may include other health specialists or professionals beyond the primary care physician such as but can also include other professionals, such as nurses, psychotherapists, family planning counsellors, etc. (see below). As primary care offices, they are generally maintaining a wide variety of specialty and institutional consultative and referral relationships for specific care needs. They usually do not focus exclusively on adolescents.
- **Private services**
These practices have in principle the same characteristics as the public ones, but the investigations and treatment provided may not be fully endorsed financially by insurances companies or the government.
- **Public based practice/centre/clinic focusing on adolescent health**
Specialized adolescent centres (39) are not widespread and can take various forms: in France, the "maisons des adolescents" essentially focus on psychosocial problems, while also providing counselling or health promotion activities; in Sweden, many youth centres tackle sexual & reproductive health. Some regions or countries have set-up specialized youth clinics which provide a large range of services covering the specificities of adolescent health (e.g. mental health, sexual & reproductive health, substance use, eating disorders, etc.). These are much more widespread in North America and Australia (87) and many of them are involved in academic activities (teaching and research).
- **School based**
In many countries, the school setting constitutes a resource, for preventive (e.g. immunization) and promotion activities, but in some instances, it also provides first aid or even primary care services and referral. Thus, adolescents receive primary care services within the school building, or in an annex of the school building. Most of the time, such services are run by clinical nurses or doctors, but in many instances, they also involve psychologists, social workers or speech therapists (see below).
- **Hospital based**
In a number of instances, the hospital is a resource to provide acute/emergency care. However, most of the time, the hospital does not provide continuity in health care (providing services to the adolescent for an extended period of time). In some instances however, adolescents receive primary care services within the hospital building, or in an annex of the hospital building, which is run as a primary care ambulatory setting.
- **Occupational health practice**
For adolescents who already have a job, the employer may provide onsite primary care, or contract with a close primary care practice. One advantage is that, under these circumstances, health care providers often develop a special interest in occupational health.

- **Mobile units**
Another important approach to primary care is the so-called “outreach” strategy, which consists of health professionals serving vulnerable adolescent populations directly within the community, such as adolescents living in very poor environments, runaway adolescents, drug addicts, etc. (103).
- **Pharmacies**
Most pharmacists play a role in terms of information regarding ordinary conditions which do not necessarily require a medical consultation, such as acne and other common skin problems, flu, or a minor injury. In some countries, depending on the public health policies, pharmacists are allowed to provide first line counselling or prescription in the field of sexual and reproductive health, such as emergency contraception or pregnancy tests.
- **Telephone and web based resources**
Information and communication technology can potentially provide advices or health care through internet websites or hotlines (104). In the future, digital technology may grow in importance, with the possibility of remote control over specific aspects of chronic disorders (e.g. hypo/hyperglycaemia and diabetes)(105).

Types of health care providers involved

We include only primary care services when they are provided by a professional to whom adolescents have access without referral.

- In most instances, primary care is provided by so-called primary care physicians, e.g. specialists in Family Medicine, Internal Medicine or Pediatrics, who deliver definitive care to the undifferentiated patient, including adolescents, and take continuing responsibility for providing the patient's comprehensive care.
- Community physicians in some countries deliver primary care within health care institutions heavily embedded in the local or regional environment
- School physicians can act as primary care physicians within the school setting. In some European countries, they represent the main source of primary care for adolescents
- In many instances, nurse practitioners or school nurses (supervised or unsupervised) provide primary care to adolescents, within the school or the community (especially acute care)(19).
- Depending on the organization of the health care system, specialists of various disciplines can represent a first point of contact in the health care system, such as gynaecologists, dermatologists or psychiatrists. Also, other health professionals can be involved in the primary care of adolescents such as psychologists, dentists, complementary alternative medicine health care provider, social workers, nutritionists, physiotherapists or speech specialists. The direct access to such professionals is highly dependent on regulations regarding the health care system (no gate keeping system in place).

Appendix 3 - Dimensions, features And indicators for SHS

The features and indicators as defined for the dimension **governance** in SHS

GOVERNANCE		
Features	Indicators	CA questions WP3 for SHS
GOV1 National policy on SHS	GOV1.1 National policy on health in schools (being a Health Promoting School) <i>Added to PHAMEU-framework</i>	1
	GOV1.2 National policy on SHS <i>Added to PHAMEU-framework</i>	2
GOV2 National policy on equity in access	GOV2.1 Policy on distribution of human resources	-
	GOV2.2 Policy on equity in access <i>Added to PHAMEU-framework</i>	-
	GOV2.3 Policy on access of school drop outs and vulnerable pupils <i>Added to PHAMEU-framework</i>	3
	GOV2.4 Policy on the possibility of consulting SHS on initiative of pupils <i>Added to PHAMEU-framework</i>	-
GOV3 Decentralization	GOV3.1 SHS has own department within the Ministry of Health	-
	GOV3.2 SHS policy development at regional or local level	3
GOV4 Quality management infrastructure	GOV4.1 Coordination of quality management	3
	GOV4.2 Development of clinical guidelines/quality assurance protocol	2
	GOV4.3 Accreditation of providers	-
GOV5 Stakeholders' and pupils' involvement and advocacy	GOV5.1 Rights of parents, children and adolescents	-
	GOV5.2 SHS advocate for health pupils	-
	GOV5.3 Stakeholder involvement in SHS policy development	2
	GOV5.4 Policy on involvement of parents	1
	GOV5.5 Pupils involvement in SHS policy/service delivery development <i>Added to PHAMEU-framework</i>	5
GOV6 Policy/procedures regarding confidentially	GOV6.1 Policy/laws regarding confidentiality	-
GOV7 Multidisciplinary collaboration	GOV7.1 Multidisciplinary collaboration	2
	GOV7.2 Collaboration health staff and educational staff	1

The features and indicators as defined for the dimension **economic conditions** in SHS

ECONOMIC CONDITIONS		
Features	Indicators	Other data sources
ECO1 SHS expenditure	ECO1.1 Total SHS expenditure	No data
	ECO1.2 Expenditure on prevention and public health	OECD (some countries, not specific SHS)
ECO2 Insurance coverage	ECO2.1 Total SHS coverage	No data
	ECO2.2 SHS services coverage	No data
	ECO2.3 Medicines coverage, <i>see next comment</i>	No data (Only available in general)
	ECO2.4 Uninsured population	No data (see 2.3)
	ECO2.5 Out-patient medical care coverage by social insurance	No data (see 2.3)
ECO3 Employment status	ECO3.1 Employment status of health care providers in SHS	No data
ECO4 Remuneration system	ECO4.1 Remuneration system for salaried health care providers in SHS	No data
	ECO 4.2 Remuneration system for self-employed SHS	No data
ECO5 Income of SHS workforce	ECO5.1 Income of SHS	Eurostat no data of SHS workforce specific, only general healthcare professionals in OECD
ECO6 Ratio health care provider vs pupil	ECO6.1 Ratio health care provider vs pupil	See WF5.3

The features and indicators as defined for the dimension **workforce** in SHS

WORKFORCE		
Features	Indicators	Countries agent questions WP3 for SHS
WF1 Type of SHS providers	WF1.1 Type of SHS providers	2
	WF1.2 Age distribution primary health care providers in SHS	-
	Workload SHS providers (See WFD5 Supply and planning)	-
WF2 Tasks and roles of SHS providers	WF2.1 Responsibilities of health care providers in SHS	3
	WF2.2 Attractiveness of SHS among medical students	-
WF3 Professional status	WF3.1 Professional status	1
	WF3.2FM/ general practice education	-
WF4 Trained and competent staff in SHS	WF4.1 Training of SHS providers	4
	WF4.2 Competence of SHS providers	-
WF5 Workforce supply and planning	WF5.1 Development of workforce supply	-
	WF5.2 Workforce planning	-
	WF5.3 Ratio SHS providers and students	3
	WF5.4 Ratio doctors with a specialization in adolescents	-

The features and indicators as defined for the dimension **access** in SHS

Access to SHS		
Features	Indicators	Countries agent questions WP3 for SHS
ACC1 National availability of SHS	ACC1.1 Available SHS workforce	3
	ACC1.2 Presence of SHS in school	2
	ACC1.3 Open consultation hours	-
	ACC1.4 Consultations on request	-
	ACC1.5 Formal appointment	See AA1.1
	ACC1.6 Flexibility appointment times/ consultation hours	NA
	ACC1.7 Drop out in SHS	See GOV2
ACC2 Geographic access of SHS services	ACC2.1 Availability of primary care physicians in SHS by region	NA
	ACC2.2 Urban-rural availability of primary care physicians in SHS	See ACC1.1
	ACC2.3 Shortage of primary care physicians in SHS	1
	ACC2.4 Shortage of community pharmacists	NA
ACC3 Accessibility of accommodation (incl. physical access)	ACC3.1 Opening hours (number of opening hours)	NA
	ACC3.2 Home visits	-
	ACC3.3 Organizational access arrangements	-
	ACC3.4 After-hours in SHS	-
	ACC3.5 Physical disability	-
	ACC3.6 Availability of online SHS	-
ACC4 Affordability of SHS	ACC4.1 Cost-sharing for health care providers in SHS	NA
	ACC4.2 Patient dissatisfaction with SHS	NA
	ACC4.3 Coverage of contraception (for instance condoms)	NA
	ACC4.4 Coverage of medical equipment used during a consult in SHS	-
ACC5 Acceptability of SHS	ACC5.1 Children and adolescents satisfaction with access of in SHS in general	-
	ACC5.2 Involvement in health care	See GOV5.4/5.5
	ACC5.3 Time alone (without parent) in consult	-
	ACC5.4 Clean environment SHS	-
	ACC5.5 Spread information regarding confidentially	-

The features and indicators as defined for the dimension **continuity of care** in SHS

Continuity of care		
Features	Indicators	Countries agent questions WP3
CON1 Longitudinal continuity of care	CON1.1 Stability of pupil-provider relationship	-
CON2 Informational continuity of care	CON2.1 Medical record keeping SHS	5
	CON2.2 Electronic clinical support systems	-
	CON2.3 Referral system	-
	CON2.4 Specialist-GP communication	-
	CON2.5 Transmissible electronic file record	-
	CON2.6 Information status of drop-in	-
CON3 Relational continuity of care	CON3.1 Choice of physician	-
	CON3.2 Pupils / parents satisfaction	-
CON4 Transition program for chronic disease <i>Added to Kringos</i>	CON4.1 Policy on transfer to adult care in SHS	-
	CON4.1 Policy on transfer from well-baby clinics to SHS	-

The features and indicators as defined for the dimension **coordination of care** in SHS

Coordination of care		
Features	Indicators	Countries agent questions WP3
CO01 Skills of SHS providers	CO01.1 Comprehensiveness skill requirements of the total SHS team <i>Added to Kringos</i>	<i>See WFD1 for type of professional working in SHS</i>
	CO01.2 Cooperation within SHS	<i>See GOV7.3 for policy on cooperation between SHS providers</i>
CO02 Collaboration of SHS with secondary care	CO02.1 Specialist outreach	-
CO03 Collaboration of SHS and PC or public health	CO03.1 Epidemiologic al data set	-
	CO03.2 Community health surveys	-
CO04 Collaboration SHS and education	CO04.1 Contact frequency SHS health care provider and school staff	<i>See GOV7 and CON2</i>

The features and indicators as defined for the dimension **comprehensiveness** in SHS

Comprehensiveness		
Features	Indicators	Countries agent questions WP3
COM1 Medical equipment available	COM1 Medical equipment	-
COM2 Treatment and follow-up of diseases	COM3.1 SHS/AHS contacts without referral	-
	COM3.2 Medicine provision by SHS/AHS	-
	COM3.3 Kind of treatment in SHS/AHS	-
	COM3.4 Follow up care children and adolescents in SHS	-
COM3 Medical treatment procedure	COM3.1 Medical technical procedures	1
COM4 Preventive care	COM4.1 Topics health problems interventions	1 1
	COM4.2 Immunization	2
	COM4.3 Routine screenings	1
COM5 Health promotion	COM5.1 Health promotion	4
	COM5.2 Advice on school health policy	<i>See COM5.1</i>
	COM5.3 Health education (group wise)	<i>See COM5.1</i>
	COM5.4 School environment (physical and social)	-
	COM5.5 School policy	-
	COM5.6 Healthy teachers	-

Appendix 4 - Dimensions, features and indicators for AHS

The features and indicators as defined for the dimension **governance** in AHS

GOVERNANCE		
Features	Indicators	CA questions WP3 for AHS
GOV1 National policy on AHS	GOV1.1 National policy on health in schools (being a Health Promoting School) <i>Added to PHAMEU-framework</i>	NA
	GOV1.2 National policy on AHS <i>Added to PHAMEU-framework</i>	2
GOV2 National policy on equity in access	GOV2.1 Policy on distribution of human resources	-
	GOV2.2 Policy on equity in access <i>Added to PHAMEU-framework</i>	2
	GOV2.3 Policy on access of school drop outs and vulnerable pupils <i>Added to PHAMEU-framework</i>	3
	GOV2.4 Policy on the possibility of consulting AHS on initiative of pupils <i>Added to PHAMEU-framework</i>	-
GOV3 Decentralization	GOV3.1 AHS has own department within the Ministry of Health	-
	GOV3.2 AHS policy development at regional or local level	-
GOV4 Quality management infrastructure	GOV4.1 Coordination of quality management	-
	GOV4.2 Development of clinical guidelines/quality assurance protocol	2
	GOV4.3 Accreditation of providers	-
GOV5 Stakeholders' and pupils' involvement and advocacy	GOV5.1 Rights of parents, children and adolescents	3
	GOV5.2 AHS advocate for health pupils	-
	GOV5.3 Stakeholder involvement in AHS policy development	-
	GOV5.4 Policy on involvement of parents	-
	GOV5.5 Pupils involvement in AHS policy/service delivery development <i>Added to PHAMEU-framework</i>	-
GOV6 Policy/ procedures regarding autonomy and confidentiality	GOV6.1 Policy/laws regarding confidentiality	-
GOV7 Multidisciplinary collaboration	GOV7.1 Multidisciplinary collaboration	2
	GOV7.2 Collaboration health staff and educational staff	1

The features and indicators as defined for the dimension **economic conditions** in AHS

ECONOMIC CONDITIONS		
Features	Indicators	Other data sources
ECO1 AHS expenditure	ECO1.1 Total AHS expenditure	No data
	ECO1.2 Expenditure on prevention and public health	No data
ECO2 Insurance coverage	ECO2.1 Total AHS coverage	No data
	ECO2.2 AHS services coverage	No data
	ECO2.3 Medicines coverage	No data
	ECO2.4 Uninsured population	No data
	ECO2.5 Out-patient medical care coverage by social insurance	No data
	ECO3.1 Employment status of health care providers in AHS	No data

ECO3 Employment status		<i>No data</i>
ECO4 Remuneration system	ECO4.1 Remuneration system for salaried health care providers in AHS	<i>No data</i>
	ECO 4.2 Remuneration system for self-employed AHS	<i>No data</i>
ECO5 Income of SHS workforce	ECO5.1 Income of AHS	<i>No data</i>
ECO 6 Ratio health care provider vs pupil Added to PHAMEU	See WF4.3	<i>No data</i>

The features and indicators as defined for the dimension **workforce** in AHS

WORKFORCE		
Features	Indicators	Countries agent questions WP3 for AHS
WF1 Type of AHS providers	WF1.1 Type of AHS providers	-
	WF1.2 Age distribution primary health care providers in AHS	-
	Workload AHS providers (See WFD5 Supply and planning)	-
WF2 Tasks and roles of AHS providers	WF2.1 Responsibilities of health care providers in AHS	-
	WF2.2 Attractiveness of AHS among medical students	-
WF3 Professional status	WF3.1 Professional status	
	WF3.2FM/ general practice education	-
WF4 Trained and competent staff in AHS	WF4.1 Training of AHS providers	
	WF4.2 Competence of AHS providers	2
WF5 Workforce supply and planning	WF4.1 Development of workforce supply	-
	WF4.2 Workforce planning	-
	WF4.3 Ratio AHS providers and students	-
	WF4.4 Ratio doctors with a specialization in adolescents	-

The features and indicators as defined for the dimension **access** in AHS

Access to AHS		
Features	Indicators	Countries agent questions WP3 for AHS
ACC1 National availability of AHS	ACC1.1 Available AHS workforce	1
	ACC1.2 Presence of AHS in school	NA
	ACC1.3 Open consultation hours	-
	ACC1.4 Consultations on request	-
	ACC1.5 Formal appointment	-
	ACC1.6 Flexibility appointment times/ consultation hours	3
	ACC1.7 Drop out in AHS	See GOV2
ACC2 Geographic access of AHS services	ACC2.1 Availability of primary care physicians in AHS by region	-
	ACC2.2 Urban-rural availability of primary care physicians in AHS	See ACC1.1
	ACC2.3 Shortage of primary care physicians in AHS	-
	ACC2.4 Shortage of community pharmacists	-
ACC3 Accessibility of accommodation	ACC3.1 Opening hours (number of opening hours)	-
	ACC3.2 Home visits	-
	ACC3.3 Organizational access arrangements	-

(incl. physical access)	ACC3.4 After-hours in AHS	2
	ACC3.5 Physical disability	-
	ACC3.6 Availability of online AHS	-
ACC4 Affordability of AHS	ACC4.1 Cost-sharing for health care providers in AHS	-
	ACC4.2 Patient dissatisfaction with AHS	-
	ACC4.3 Coverage of contraception (for instance condoms)	2
	ACC4.4 Coverage of medical equipment used during a consult in AHS	2
ACC5 Acceptability of AHS	ACC5.1 Children and adolescents satisfaction with access of in AHS in general	-
	ACC5.2 Involvement in health care	-
	ACC5.3 Time alone (without parent) in consult	-
	ACC5.4 Clean environment AHS	-
	ACC5.5 Spread information regarding confidentially	-

*The features and indicators as defined for the dimension **continuity of care** in AHS*

Continuity of care		
Features	Indicators	Countries agent questions WP3
CON1 Longitudinal continuity of care	CON1.1 Stability of pupil-provider relationship	-
CON2 Informational continuity of care	CON2.1 Medical record keeping AHS	4
	CON2.2 Electronic clinical support systems	-
	CON2.3 Referral system	-
	CON2.4 Specialist-GP communication	-
	CON2.5 Transmissible electronic file record	-
	CON2.6 Information status of drop-in	-
CON3 Relational continuity of care	CON3.1 Choice of physician	-
	CON3.2 Pupils / parents satisfaction	-
CON4 Transition program for chronic disease Added to Kringos	CON4.1 Policy on transfer to adult care in AHS	-
	CON4.1 Policy on transfer from well-baby clinics to AHS	-

*The features and indicators as defined for the dimension **coordination of care** in AHS*

Coordination of care		
Features	Indicators	Countries agent questions WP3
COO1 Skills of AHS providers	COO1.1 Comprehensiveness skill requirements of the total AHS team <i>Added to Kringos</i>	-
	COO1.2 Cooperation within AHS	-
COO2 Collaboration of AHS with secondary care	COO2.1 Specialist outreach	-
COO3 Collaboration of AHS and PC or public health	COO3.1 Epidemiologic al data set	1
	COO3.2 Community health surveys	-
COO4 Collaboration AHS and education	COO4.1 Contact frequency AHS health care provider and school staff	NA

*The features and indicators as defined for the dimension **comprehensiveness** in AHS*

Comprehensiveness		
Features	Indicators	Countries agent questions WP3
COM1 Medical equipment available	COM1 Medical equipment	-
COM2 Treatment and follow-up of diseases	COM3.1 AHS/AHS contacts without referral	-
	COM3.2 Medicine provision by AHS/AHS	-
	COM3.3 Kind of treatment in AHS/AHS	-
	COM3.4 Follow up care children and adolescents in AHS	-
COM3 Medical treatment procedure	COM3.1 Medical technical procedures	-
COM4 Preventive care	COM4.1 Topics health problems interventions	2
	COM4.2 Immunization	-
	COM4.3 Routine screenings	-
COM5 Health promotion	COM5.1 Health promotion	-
	COM5.2 Advice on school health policy	See COM5.1
	COM5.3 Health education (group wise)	See COM5.1
	COM5.4 School environment (physical and social)	-
	COM5.5 School policy	-
	COM5.6 Healthy teachers	-

Appendix 5 – Data and references for estimates of SHS expenditures

Country	Nurses / 100000 pupils (MOCHA questionnaires)	Nurses' salaries (annual, converted into PPPs)	Doctors / 100000 pupils (MOCHA questionnaires)	Doctors' salaries weighed average (annual, converted into PPPs)	Doctors' salaries GP estimate (annual, converted into PPPs)	Doctors' salaries specialist estimate (annual, converted into PPPs)
Belgium	0		91	\$249,025.88 (OECD 2016)	\$125,680.57 (OECD 2016)	\$323,539.58 (OECD 2016)
Latvia	1000	\$17,444.68 (OECD 2016)	0			
Sweden	250	\$49,511.53 (ERI 2018)	25	\$99,707.49 (OECD 2016)		\$ 99,707.49 (OECD 2016)
Finland	167	\$42,460.46 (OECD 2016)	48	\$107,975.42 (OECD 2016)	\$79,810.04 (OECD 2016)	\$115,911.69 (OECD 2016)
Bulgaria	125	\$33,892.50 (ERI 2018)	50	\$136,836.12 (ERI 2018)		
Malta	29	\$68,160.41 (E(ERI 2018)	14	\$167,899.27 (ERI 2018)		
Austria	154	\$27,431.28 (PayScale 2018)	0			
Estonia	167	\$23,837.35 (OECD 2016)	0			
Iceland	57	\$52,144.09 (OECD 2016)	0			
Poland	101	\$25,842.74 (OECD 2016)	0			
Portugal	40	\$26,741.76 (PayScale 2018)	0			

OECD Organisation for Economic Cooperation and Development **ERI** Economic Research Institute

Appendix 6 - Summary of the results of the features and indicators of SHS

Six features of the dimension 'Governance'

Table 1a: Summary of the features of the dimension 'Governance' for countries with **Model A**

Country	Features of governance					
	National policy on SHS	National policy on equity in access	Decentralization/authorities responsible for SHS ¹	Quality management infrastructure	Stakeholders advocacy/participation	Multi-disciplinary collaboration
Bulgaria	Red	Orange	Red	Red	Yellow	Red
Croatia	Red	Orange	Yellow	Blue	Red	Red
Finland	Yellow	Red	Red	Yellow	Yellow	Red
Netherlands	Red	Orange	Red	Red	Yellow	Red
Norway	Red	Orange	Yellow	Red	Red	Red
Poland	Red	Red	Red	Red	Yellow	Red
Portugal	Red	Red	Red	Red	Yellow	Red
Sweden	Red	Orange	Red	Red	Yellow	Red
UK ENG	Red	Red	Red	Red	Yellow	Red
UK NI	Red	Missing	Red	Red	Yellow	Red

Red extensive policy on this features exist; **Orange**, moderate policy on this features exist; **Blue** policy on this feature is limited

¹ **Red** is shared responsibility between national and regional authorities; **Orange**, national authorities are responsible; **Blue** is regional authorities are responsible.

Table 1b: Summary of the features of the dimension 'Governance' for countries with **Model B**

Country	Features of governance					
	National policy on SHS	National policy on equity in access	Decentralization /authorities responsible for SHS ¹	Quality management infrastructure	Stakeholders advocacy/participation	Multi-disciplinary collaboration
Cyprus	Yellow	Orange	Yellow	Yellow	Yellow	Blue
Estonia	Yellow	Red	Red	Yellow	Yellow	Yellow
France	Yellow	Missing	Red	Yellow	Yellow	Yellow
Iceland	Red	Blue	Red	Yellow	Yellow	Yellow
Ireland	Red	Red	Red	Yellow	Missing	Yellow
Italy	Yellow	Orange	Red	Yellow	Yellow	Yellow
Latvia	Yellow	Orange	Red	Yellow	Yellow	Blue
Lithuania	Yellow	Red	Red	Red	Yellow	Yellow
Luxembourg	Yellow	Orange	Red	Some missings	Some missings	Some missings
Romania	Yellow	Orange	Red	Red	Blue	Yellow
Slovenia	Yellow	Orange	Red	Yellow	Yellow	Yellow

Red extensive policy on this features exist; **Orange**, moderate policy on this features exist; **Blue** policy on this feature is limited

¹ **Red** is shared responsibility between national and regional authorities; **Orange**, national authorities are responsible; **Blue** is regional authorities are responsible

Table 1c: Summary of the features of the dimension 'Governance' for countries with **Model C**

Country	Features of governance					
	National availability	National policy on equity in access	Decentralization/authorities responsible for SHS ¹	Quality management infrastructure	Stakeholders advocacy/participation	Multi-disciplinary collaboration
Austria	Orange	Orange	Orange	Blue	Blue	Blue
Denmark	Blue	Red	Blue	Blue	Blue	Blue
Germany	Blue	Blue	Red	Some missings	Blue	Blue
Greece	Blue	Red	Orange	Some missings	Blue	Blue
Hungary	Blue	NA	Blue	Orange	Blue	Orange
Malta	Orange	Red	Orange	Blue	Blue	Blue
Slovakia	Blue	Blue	Orange	Blue	Blue	Blue

Red extensive policy on this features exist; **Orange**, moderate policy on this features exist; **Blue** policy on this feature is limited

¹ **Red** is shared responsibility between national and regional authorities; **Orange**, national authorities are responsible; **Blue** is regional authorities are responsible

Summary of the results of the five features of the dimension 'Workforce'

Table 2a: Summary of the features of the dimension 'Workforce' for countries with **Model A**

Country	Features Workforce				
	Type of SHS providers	Tasks and roles of SHS providers	Professional status	Trained and competent staff in SHS	Workforce supply ¹
Bulgaria	Orange	Orange	Red	Orange	
Croatia	Red	Orange	Red	Red	
Finland	Red	Red	Red	Red	
Netherlands	Red	Blue	Red	Red	
Norway	Orange	Blue	Red	Orange	
Poland	Orange	Red	Red	Red	
Portugal	Some missings	Orange	Red	Orange	
Sweden	Orange	Orange	Red	Red	
UK ENG	Some missings	Orange	Red	Red	
UK NI	Missing	Missing	Red	Missing	

Red = Yes there is national policy for workforce, **Orange** there is some national policy for workforce, **Blue** no national policy on this topic for workforce

Table 2b: Summary of the features of the dimension 'Workforce' for countries with **Model B**

Country	Features Workforce				
	Type of SHS providers	Tasks and roles of SHS providers	Professional status	Trained and competent staff in SHS	Workforce supply ¹
Belgium-F					
Belgium-W					
Cyprus	Red	Blue	Red	Red	
Estonia	Nurse	Orange	Blue	Orange	
France	Blue	Red	Red	Red	
Iceland	Orange	Red	Red	Orange	
Ireland	Orange	Orange	Orange	Orange	
Italy	Partly missing	Orange	Blue	Orange	
Latvia	Orange	Orange	Blue	Orange	
Lithuania	Orange	Red	Blue	Orange	
Luxembourg	Partly missing	Orange	Red	Orange	
Romania	Orange	Red	Red	Orange	
Slovenia	Red	Red	Red	Red	

Red = Yes there is national policy for workforce, Orange there is some national policy for workforce, Blue no national policy on this topic for workforce

Table 2c: Summary of the features of the dimension 'Workforce' for countries with **Model C**

Country	Features Workforce				
	Type of SHS providers	Tasks and roles of SHS providers	Professional status	Trained and competent staff in SHS	Workforce supply ¹
Austria	Orange	Red	Blue	Orange	
Denmark	Orange	Blue	Blue	Red	
Germany	Orange	Orange	Blue	Orange	
Greece	Blue	Blue	Red	Blue	
Hungary	Orange	Orange	Red	Orange	
Malta	Red	Blue	Red	Orange	
Slovakia	Blue	Orange	Blue	Blue	

Red = Yes there is national policy for workforce, Orange there is some national policy for workforce, Blue no national policy on this topic for workforce

¹ Workforce supply and planning depends on the tasks, provision of health care, number of students, etc. and is therefore difficult to categorize

Summary of the results of the features of the dimensions 'Access' and 'Continuity'

Table 3a: Summary of the features of the dimensions 'Access' and 'Continuity' for countries with Model A

Features →	Access			(Informational) continuity
Country	Health care providers ¹	National availability ²	Geographic access ³	Information on pupils and access to this information ⁴
Bulgaria				
Croatia				
Finland				
Netherlands		Partly missing		
Norway				
Poland	Nurse			
Portugal				
Sweden				
UK ENG	Missing	Partly missing		
UK NI	Missing			

Table 3b: Summary of the features of the dimensions 'Access' and 'Continuity' for countries with Model B

Features →	Access			(Informational) continuity
Country	Health care providers ¹	National availability ²	Geographic access ³	Information on pupils and access to this information ⁴
Belgium-F				
Belgium-W				
Cyprus				
Estonia	Nurse			
France	Nurse	Partly missing		Partly missing answers
Iceland				
Ireland				
Italy	Missing			
Latvia				
Lithuania	Nurse			
Luxembourg		Partly missing		
Romania				

Table 3c: Summary of the features of the dimensions 'Access' and 'Continuity' for countries with Model C

Features →	Access			(Informational) continuity
Country	Health care providers ¹	National availability ²	Geographic access ³	Information on pupils and access to this information ⁴
Austria	Doctor			
Denmark				
Germany	Doctor			
Greece		Partly missing	Missing	
Hungary				Partly missing answers
Malta				
Slovakia				

¹ **Red** is availability of nurse and doctor, **Orange** is availability of nurse or doctor and/or other providers, **Blue** is only other providers.

² **Red** is time professionals spent in school is fulltime, part-time, once/twice a week and as often as needed individual contact, **Orange** once a year or 3-9 times.

³ **Orange** is some shortage, **Blue** is severe shortage.

⁴ **Red** is policy on information on pupils in schools **and** policy on easy access to this information, **Orange** is information on pupils in schools **or** easy access to this information, **Blue** no policy on information on pupils in schools and neither on easy access to information.

Appendix 7 Health outcomes for School health services (4-18 years)

In this document there are two tables shown. In the first table the options for health indicators are described per health topic. In the first column (of the table 1) you can see the source and year of last data collection. There are hyperlinks made for every source, so that you access the database or article directly. In the second and third column (of table 1) you can see whether the indicator is a self-reported indicator or a registered indicator. In the last column you can see the age(s) that are covered by the indicators (in grey). As you can see, for the health topics (4) ADHD and (9) learning disabilities, there are so far no 'European' data found yet. The indicators with the most potential across the following four criteria ((1) recent data, (2) coverage self-reported and registered data, (3) coverage broad age-range, (4) coverage most EU countries)) are marked orange (in the opinion of Jorieke). The marked potential indicators are open for discussion during the skype-meeting on 24-08-2016. Note that the health topics are named followed the last version from the TNO meeting last February (and are not updated yet). In the second table you can see per health indicator –named by the source (divided by the same health topics as in table 1 and in the same order) the countries that are covered by that specific health indicator (in green) and the countries that are not covered (in red). Note that for the health indicator from the source 'Surveillance atlas of infectious disease' (from health topic 10: 'immunization') no countries are covered since first the type of infection(s) must be chosen.

Table 1. Options for health indicators per health topic plus coverage age by health indicator

Data source, + last year data collection	Self-reported indicator	Registered indicator	Age coverage by the indicator														
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Health topic 1: Obesity or healthy weight																	
HBSC (2013,2014)	Underweight																
	% measured underweight using WHO guidelines of >2SD below age and sex coverage																
HBSC (2013,2014)	Overweight																
	% of overweight >1SD above mean by WHO guidelines for age/sex																
HBSC (2013,2014)	Body weight: weight-reduction behaviors																
	Young people were asked whether they were currently “on a diet or doing something else to lose weight”. Response options were: “No, my weight is fine”; “No, but I should lose some weight”; “No, I need to put on weight”; and “Yes”.																
Eurostat (2008) covers 15 EU countries		Obesity (as defined by WHO)															
		Percentage of adolescents with obesity															
COSI project (2009,2010) Covers 12 EU countries		BMI scores															
		Measures BMI scores															
International Obesity taskforce, London & European childhood obesity group/ EASO (1992-2001)		BMI scores															
		Systematic review of European countries, with the mean BMI scores per country (for different age groups (0-21) and with data from different years.															
Health topic 2: Injuries																	
Injuries database Public Access (2013)		Intent of injuries Per 1 000 by age group and gender (and prevention domain): (1)intentional self-harm, (2)															

Data source, + last year data collection	Self-reported indicator	Registered indicator	Age coverage by the indicator																	
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
		assault & other violence, (3) accidental injury.																		
Injuries database Public Access (2013)		Location of injuries (1) school, (2) home, (3)road.																		
Eurostat (2008) covers 13 EU countries		Road accidents Percentage road accidents by adolescents																		
HBSC (2013,2014)	Medically attended injuries Young people were asked how many times during the last 12 months they had been injured and had to be treated by a doctor or nurse. Response options ranged from "I was not injured in the past 12 months" to "four times or more".																			
Health topic 3: Asthma																				
ISAAC (2001-2003) <i>Maybe GAN will provides us timely with new data, they started in 2015 with new data collection.</i>		Prevalence asthma symptoms Prevalence (%) of asthma symptoms																		
ISAAC (2001-2003) <i>Maybe GAN will provides us timely with new data, they started in 2015 with new data collection.</i>		Prevalence of severe asthma symptoms Prevalence (%) of severe asthma symptoms																		
European Hospital Morbidity Database EHMD -WHO (average is 2012) ICD Code= 1007		Asthma admission rates (1) % of all-in patients admissions, (2) number of in-patients per 1000 population.																		

Data source, + last year data collection	Self-reported indicator	Registered indicator	Age coverage by the indicator														
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Health topic 4: ADHD																	
Health topic 5: tobacco use																	
Global Health Observatory data Repository- WHO (2015) Covers not all EU		Current tobacco use Current prevalence tobacco use.															
Global Youth Tabaco Survey (GYTS) (1999-2003) Covers 7 EU countries.		Tabaco use Focuses on percentage students who used Tabaco. There were several answer possibilities: - Ever smoked cigarettes, even one or two puffs - Currently use any tobacco product - Currently smoke cigarettes - Currently use other tobacco products - Ever smokers, smoked first cigarette before age 10 - Current smokers, smoke > 6 cigarettes per day															
HBSC (2013,2014)	Percentage Tried smoking																
HBSC (2013,2014)	Percentage Smoking at present																
HBSC (2013,2014)	Age when smoked first cigarette																
ESPAD (2011)	Lifetime use of cigarettes Percentages																
ESPAD (2011)	Cigarette use past 30 days, percentages																
ESPAD (2011)	Age of onset cigarette use percentages																
Health topic 6: Alcohol use																	
ISR-2		Age alcohol first time															

Data source, + last year data collection	Self-reported indicator	Registered indicator	Age coverage by the indicator																	
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
	during the past 30 days																			
ESPAD (2011)	Having had five or more drinks on one occasion																			
	During the past 30 days																			
Health topic 7: drugs use																				
HBSC (2013,2014)	Cannabis use																			
	Young people were asked how often they had used cannabis in their lifetimes, during the last 12 months and during the last 30 days.																			
ESPAD (2011)	Cannabis use life time																			
	They were asked if they ever used cannabis (percentages)																			
ESPAD (2011)	Cannabis use the last 30 days																			
	They were asked if they used cannabis the last 30 days (percentages)																			
Health topic 8: Dental health																				
WHO oral databank (variation 1996-2012)		DMFT scores																		
Health topic 9: Learning disabilities																				
Health topic 10: Immunization																				
European center for disease prevention and control		Vaccine schedule for EU countries																		
		For a range of diseases																		
Surveillance atlas of infectious diseases (2014)		Reported cases of a disease per EU country																		
		For a range of diseases (the age range 15-24 is also included).																		
Health topic 11: Well being																				
HBSC (2013,2014)	Self-rated health rating health as only fair or poor																			
HBSC (2013,2014)	Multiple health compliant																			
	Young people were asked how often they had experienced the following symptoms in the last six months:																			

Data source, + last year data collection	Self-reported indicator	Registered indicator	Age coverage by the indicator														
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	headache; stomach ache; feeling low, irritable or bad tempered; feeling nervous; difficulties in getting to sleep; and feeling dizzy. Response options for each symptom ranged from “about every day” to “rarely or never”.																
Kiddscreen study (2008)	SDQ (emotional and behavioral problems 8-18 years) Positive or negative attributes are assessed by 25 items focusing the following dimensions: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behavior.																

Table 2. Coverage* of countries per health indicator, named by source (divided by health topic).

Health topic → country ↓	Obesity					Injuries				Asthma				ADHD	Tobacco Use				
	HBS C	Euro stat	EAS O	COS I	Total	Injury	Eurostat	HBSC	total	ISAAC	GAN	WHO	total	-	WHO	GYTS	HBSC	ESPA D	Total
Austria																			
Belgium																			
Bulgaria																			
Croatia																			
Cyprus																			
Czech Republic																			
Denmark																			
Estonia																			
Finland																			
France																			
Germany																			
Greece																			
Hungary																			
Iceland																			
Ireland																			
Italy																			
Latvia																			
Lithuania																			
Luxembourg																			
Malta																			
Netherlands																			
Norway																			
Poland																			
Portugal																			
Romania																			
Slovakia																			
Slovenia																			
Spain																			
Sweden																			
United-Kingdom																			

Health Topic →	Alcohol use					Drugs use			Dental Health			Learning disabilities	Immunization		
Country ↓	ISR D 2	ISRD -3	EPSA D	HBS C	total	EPSA D	HBS C	total	WHO =<2008	WHO >2008	Total	-	EU Centre Immun.	Surveillance atlas*	Total
Austria															
Belgium															
Bulgaria															
Croatia															
Cyprus															
Czech Republic															
Denmark															
Estonia															
Finland															
France															
Germany															
Greece															
Hungary															
Iceland															
Ireland															
Italy															
Latvia															
Lithuania															
Luxembourg															
Malta															
Netherlands															
Norway															
Poland															
Portugal															
Romania															
Slovakia															
Slovenia															
Spain															
Sweden															
United-Kingdom															

Health Topic → Country ↓	Well-being		
	HBSC	KID Z	Total
Austria			
Belgium			
Bulgaria			
Croatia			
Cyprus			
Czech Republic			
Denmark			
Estonia			
Finland			
France			
Germany			
Greece			
Hungary			
Iceland			
Ireland			
Italy			
Latvia			
Lithuania			
Luxembourg			
Malta			
Netherlands			
Norway			
Poland			
Portugal			
Romania			
Slovakia			
Slovenia			
Spain			
Sweden			
United-Kingdom			

* Countries covered can only be searched when the type of infections are chosen.

Appendix 8 – Summary of the results of AHS

Table 1a: Summary of the features of the dimensions of AHS for countries with **Model A**

	Governance				Access		Continuity
Country	National policy	Policy olicy on equity	Quality management infrastructure	Governance, autonomy and confidentiality	Access, availability	Access affordability	Continuity
Croatia	Red	Orange	Orange	Orange	Red	Orange	Orange
Czech	Blue	Orange	Orange	Orange	Red	Orange	Red
Denmark	Blue	Red	Orange	Red	Red	Orange	Red
Estonia	Red	Orange	Red	Red	Orange	Blue	Red
Finland	Red	Red	Red	Red	Red	Orange	Red
France	Red	Orange	Orange	Red	Orange	Blue	Orange
Italy	Red	Orange	Orange	Orange	Orange	Blue	Red
Netherlands	Blue	Orange	Orange	Red	Red	Orange	Orange
Norway	Red	Orange	Blue	Red	Red	Orange	Orange
Portugal	Red	Orange	Orange	Orange	Red	Orange	Orange
Slovenia	Red	Orange	Orange	Orange	Red	Red	Orange
Spain	Red	Red	Red	Orange	Red	Orange	Red
United Kingdom	Red	Red	Red	Orange	Orange	Orange	Orange
ENG	Red	Red	Red	Orange	Orange	Orange	Orange

Red = Yes there is extensive polic on features of AHS, Orange there is some policy, Blue no or limited policy

Table 1b: Summary of the features of the dimensions of AHS for countries with **Model B**

	Governance				Access		Continuity
Country	National policy	Policy olicy on equity	Quality management infrastructure	Governance, autonomy and confidentiality	Access, availability	Access affordability	Continuity
Austria	Blue	Blue	Blue	Red	Orange	Blue	Orange
Belgium- F	Red	Orange	Blue	Orange	Red	Blue	Orange
Bulgaria	Red	Red	Orange	Orange	Orange	Orange	Orange
Germany	Red	Blue	Orange	Red	Orange	Orange	Blue
Greece	Red	Orange	Orange	Blue	Orange	Blue	Orange
Ireland	Blue	Red	Red	Orange	Orange	Blue	Blue
Luxembourg	Blue	Orange	Blue	Red	Red	Blue	Orange
Sweden	Blue	Orange	Blue	Orange	Red	Orange	Orange

Red = Yes there is extensive polic on features of AHS, Orange there is some policy, Blue no or limited policy

Table 1c: Summary of the features of the dimensions of AHS for countries with **Model C**

	Governance				Access		Continuity
Country	National policy	Policy olicy on equity	Quality management infrastructure	Governance, autonomy and confidentiality	Access, availability	Access affordability	Continuity
Cyprus	Blue	Orange	Blue	Blue	Blue	Orange	Blue
Hungary	Blue	Missings	Blue	Blue	Orange	Blue	Blue
Iceland	Blue	Blue	Blue	Orange	Orange	Orange	Orange
Latvia	Blue	Orange	Blue	Blue	Blue	Blue	Blue
Lithuania	Blue	Orange	Blue	Blue	Orange	Blue	Blue
Malta	Blue	Orange	Blue	Blue	Orange	Blue	Orange
Poland	Blue	Orange	Orange	Blue	Orange	Blue	Orange
Romania	Blue	Blue	Blue	Blue	Blue	Red	Orange
Slovakia	Blue	Blue	Blue	Blue	Orange	Orange	Orange

Red = Yes there is extensive polic on features of AHS, Orange there is some policy, Blue no or limited policy