Background & Objectives
Multiple Sclerosis (MS) is the second most common cause of neurological disability and highest per capita costs among all other neurological disorders [1]. Even though France has the lowest prevalence rates among other north European countries (94.7 per 100,000) [2], in 2009 the total annual cost per patient was estimated at €44,400, translated in an estimated total cost of €1.3 billion per year for MS in France [3].

Due to the advances observed in Disease Modifying Therapies (DMTs) for MS since 2012 (such as the approval of the oral agents Dimethyl fumarate and Fingolimod) which might imply higher direct costs but also higher efficacy and compliance rates [4, 5], we aimed to provide an updated analysis on the socioeconomic burden, Health Related Quality of Life (HRQoL) and experience of MS patients in France.

Results
Socio-economic burden
On average annual cost of MS per patient in France was estimated at €24,403 (±18,538) (Figure 1). 37% of total costs (€13,838, ±6,176) accounted for indirect costs due to productivity losses and 36% (€8,877, ±8,497) and 7% (€1,686, ±4,309) accounted for mean, annual direct medical and non-medical costs respectively.

Indirect costs were primarily driven by permanent work disability (7,701 ±7,472) and temporary sick leave (3,691 ±3,101), corresponding to 42% and 12% of mean annual costs respectively.

Direct costs were shaped by DMD utilization (7,609 ±8,271) formal/ informal caregiving (i.e. direct non-medical costs) (1,686, ±4,309) and ambulatory/inpatient patient care (1,267±1,414) (i.e. 31%, 7% and 5% of mean annual cost respectively).

Average annual cost per patient amounted up to €31,514 (±23,64) for individuals with Primary Progressive MS (PPMS), €27,664 (±22,992) for those with Secondary Progressive MS (SPMS) and €24,261 (±17,775) for those with Relapsing Remitting MS (RRMS) (Figure 1).

Indirect costs due to productivity losses accounted for 72% (€22,684), 80% (€22,233) and 40% (€12,075) of the above total costs respectively.

Statistically, calculated in differences between (p=0.05) observed between groups in EQ-5D-5L utility, utility loss and Barthel Index scores (Table 1).

Experience with MS
Overall, a moderate satisfaction (7.4 out of 10) was observed with the health care received by the national health system and this dropped to 6.6 for individuals with PPMS, although no statistically significant differences were observed between types of MS with statistically significant differences observed between groups in EQ-5D-5L utility, utility loss and Barthel Index scores (Table 1).

Conclusions & Future directions
MS poses a significant cost burden for the French society, with medication and indirect costs representing 88% of total average costs and substantial unmet needs being reported in the clinical management and social care currently received by MS patients in France.

In the absence of long-term, real world data about the cost-effectiveness of receiving DMT earlier in the course of the disease, when to initiate treatment and which DMT to use are still to be determined.

Table 1. Sample HRQoL characteristics [mean (SD)] and statistical significance (p) of differences between type of MS groups.

<table>
<thead>
<tr>
<th>All sample (n=92)</th>
<th>RRMS (n=52)</th>
<th>SPMS (n=7)</th>
<th>PPMS (n=11)</th>
<th>Unknown type (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ-5D-5L Utility</td>
<td>0.48 (0.28)*</td>
<td>0.55 (0.24)</td>
<td>0.23 (0.32)</td>
<td>0.32 (0.37)</td>
</tr>
<tr>
<td>Utility loss</td>
<td>0.34 (0.28)*</td>
<td>0.27 (0.24)</td>
<td>0.6 (0.32)</td>
<td>0.51 (0.37)</td>
</tr>
<tr>
<td>EQ-5D-5L VAS</td>
<td>60.5 (22)</td>
<td>65.2 (21)</td>
<td>46 (25.2)</td>
<td>50.9 (21.3)</td>
</tr>
<tr>
<td>Barthel index</td>
<td>17.5 (3.3)*</td>
<td>18.6 (1.9)</td>
<td>14.3 (4.5)</td>
<td>14.4 (4.6)</td>
</tr>
<tr>
<td>Treatment satisfaction</td>
<td>7.4 (2.3)</td>
<td>7.6 (2.2)</td>
<td>7.7 (3.0)</td>
<td>6.1 (2.8)</td>
</tr>
</tbody>
</table>

*p<0.001

Figure 3. Aspects that a potentially new treatment should keep under control according to individuals with MS (% of respondents, n=97)

Methods
Data collection was based on a web-survey (Qualtrics®) of non-institutionalised individuals with MS.

Three patient associations (either national or supra national) were invited to cascade the surveys to their network of patients.

Data were collected on i) demographic, ii) disease and clinical related variables, iii) Disease Modifying Drug (DMD) consumption, iv) healthcare resource and informal care utilisation, v) productivity losses, vi) (EuroQol, 5-domain; EQ-5D-5L, EQ-5D-5L VAS and vii) Physical disability (Barthel Index).

In addition, the survey gauged patients’ experience with MS through questions on i) treatment satisfaction, ii) future treatment expectations, iii) caregiver arrangements and iv) preferred sources of information for MS.

Microsoft® Excel 2010 was used to generate descriptive statistics and SPSS® (v.21) to test for treatment group differences (using one way ANOVA and independent samples t-test).

Figure 1. Average annual cost (€ 2014-15) per patient across all sample and type of MS in France

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References

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